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PROCEEDINGS AND REPORTS

of the

Belfast Natural History

and

Philosophical Society

Session 1932-1933.

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Proceedings and Reports

— OF THE —

BELFAST NATURAL HISTORY AND PHILOSOPHICAL SOCIETY

— FOR THE —

SESSION 1932-1933.

EDITED BY
ARTHUR DEANE, F.R.S.E., M.R.I.A.,
HON. SECRETARY.

Belfast:
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1934.

BELFAST NATURAL HISTORY AND PHILOSOPHICAL SOCIETY.
[ESTABLISHED 1821.]

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The membership of the Society consists of Shareholders, Annual Subscribers and Honorary Members.

Shareholders holding more than two shares are not liable for an annual subscription, but shareholders of two shares pay an annual subscription of five shillings, and holders of one pay ten shillings.

In 1914 a new class of membership was created including persons of either sex, to be elected under the bye-laws of the Society, and admitted by the Council on payment of ten shillings per annum. Such members have all the privileges of the Society, and take part in any business of the Society not affecting the ownership of the property. In 1917 an Archæological Section was founded. Persons wishing to join the Section must be members of the Society and pay an additional minimum subscription of five shillings per annum.

A general meeting of Shareholders and Members is held annually to receive the Report of the Council and the Statement of Accounts for the preceding year ending 31st October, to elect members of Council, to replace those retiring by rotation or for other reasons and to transact any other business incidental to an Annual Meeting.

The Council elect from among their own number the President and other officers of the Society.

Each member has the right of personal attendance at the ordinary lectures of the Society, and the privilege of introducing two friends for admission to such.

Any further information required may be obtained from the Hon. Secretary, at 7 College Square North, Belfast.

CONTENTS.

	PAGES
Davies, Oliver, and Evans, Estyn—" Excavations at Goward, near Hilltown, Co. Down	90—105
Hunter, Richard H.—" The Infancy of Medicine "	37—57
Lepper, R. S.—" School Life in Late Victorian Times "	1—36
Simms, S.—" Brief Sketches of Some Forty Authors of Belfast Birth"	58—77
Exchanges	108—111
Annual Meeting of Society	79—84
Obituary	85—86
Annual Meeting of Archaeological Section ...	87—89
Officers and Council, 1933-34	112
Shareholders and Members	113—121
Statement of Accounts	106—107
Constitution	ii
List of Presidents and Officials	v & vi

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Belfast Natural History and Philosophical Society.

Founded 5th June, 1821.

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To be filled up by the Candidate

Name, etc. ....
[Please write name in full.]

Description ....

Residence ....

.....

....., being desirous of becoming a Member of the Society, I, the undersigned member, recommend..... as a suitable candidate for election.

Dated this.....day of....., 19.....

Signature of Member } .....

[Candidate must be known to the Member signing this form.]
[*All applications are subject to the approval of the Council.*]

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Persons wishing to join the Archæological Section must be Members of the Society, and pay an additional minimum subscription of five shillings per annum. State below if you wish to join this section.

I desire to join the Archæological Section.

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PROCEEDINGS OF BELFAST NATURAL HISTORY AND PHILOSOPHICAL SOCIETY. SESSION 1932-1933.

29th November, 1932.

IN MUSEUM BUILDING, COLLEGE SQUARE.

PRESIDENTIAL ADDRESS.

R. S. Lepper, M.A., LL.M., F.R.HIST.S.

SCHOOL LIFE IN LATE VICTORIAN TIMES.*

The M.C.B. under Dr. Parker. Rugby under Dr. Percival, *circa* 1881-9.

Introduction.

The subject of this address may be regarded as either a fragment of Educational History or as a slight contribution to that comprehensive and hybrid science of Sociology, which, like Charity, covers, or tries to cover, a multitude of sins. It aims at explaining to a younger generation the social and educational environment and limitations of an earlier one, by recalling, from the boy's point of view, the unusual and contrasting experiences of one who spent seven years as a day-boy at a Belfast secondary school, the Methodist College, then rising into fame under the Irish Intermediate Education System, followed by a year as a boarder at an old English Public School, Rugby, then renewing its vigour under a great headmaster.

*The original title of this address was "Student Life in Late Victorian Times"; but time, and the size of the subject, did not allow life at Cambridge and Leipzig Universities to be included. Hence the change of title. It was illustrated by some 60 lantern slides, with maps, and with other objects.

But it has a further aim. In that fine play of Maeterlinck, *The Blue Bird*, so full of beauty and wisdom, there is a wistful fancy that, in the spirit world, our dear dead friends awaken to life and activity when we think of them. Let us do so! For, like the gentle Charles Lamb,

"We have had playmates, we have had companions,
In our days of childhood, in our joyful school-days;
All, all are gone, the old familiar faces.

. . . . . .

So may we talk of the old familiar faces?
How some they have died, and some they have left us,
And some are taken from us; all are departed;
All, all are gone, the old familiar faces."

. . . . . .

Not all perhaps; but let us recall some whose memory is still green, and the world in which they worked.

Belfast (*c.* 1880-8).

Conditions.

(a) *Material.* These were much simpler, rougher, slower, darker, dirtier, and duller than in 1932. Belfast itself was a busy but modest provincial business town of some 200,000 inhabitants, about half its present population, and of much smaller area than now; famous for its fine site and surroundings, sturdy populace, broad straight streets, large markets and thriving industries, especially those making linen, ships, ropes and whiskey.

A natural junction for the land and sea transport of East and Mid Ulster with Scotland and Lancashire, the thrift, vigour and foresight of her merchants had already begun that policy of continuous harbour improvement which was rapidly making Belfast the greatest port in Ireland.

Area. In extent Belfast in 1880 was small, with an area of less than 7,000 acres, as compared with 16,500 acres in 1932. Large districts on both sides of the river, long since built over, were then private demesnes, open farms, swamps, or rubbish dumps. To the south-west the town boundary was about Adelaide Park, and there were many open fields along the Lisburn Road at Windsor, down to the Bog Meadows, on which we skated in shallow safety when the ice would bear us. It was many years before the

roads from Windsor to Finaghy, or to the Lagan, ceased to run through the open country, and the splendid old beeches of Malone were slaughtered to widen a road.

Buildings. The town itself seemed better in aim than in execution. Though its streets were well planned, they had few noteworthy public buildings and many ill-designed and pretentious private ones; while some of the finer business offices were in streets too narrow to show them properly, or adjoining quite unworthy neighbours.

Some modest and dignified eighteenth or early nineteenth century buildings, such as the White Linen Hall, the News Room, the Belfast Bank Head Office, the Royal Hospital, the Belfast Charitable Society's buildings, the Academical Institution, the Museum, the churches of St. Anne, St. George, May Street and Fisherwick Place, and a few private houses, reminded one of the days of small things and great aims.

Victorian progress and prosperity had added more ambitious and ornate buildings, such as the Custom House, Harbour Office, Court House, Town Hall, Albert Memorial, Ulster Hall, the chief railway stations, the head offices of the Northern, the Provincial and the Ulster Banks, and of Messrs. Ewart, Messrs. Richardson & Owden, and Messrs. Marcus Ward; some fine churches, such as St. Peter's, St. James's and Carlisle Memorial Church, and many others less fine; the Queen's, Assembly's and Methodist Colleges, and the new buildings for the Belfast Academy (1880).

Public Works. For the next fifteen years (1881-1895) Belfast was busy with works of public utility, and the development of its great industries, such as new streets, parks, water supply, electricity, drainage, fire stations, quays, docks, shipyards, ropeworks, mills and factories, while the banks of Ulster spread over Ireland, and its produce over the World.

The making of Royal Avenue in 1881 opened both a new thoroughfare and a new epoch, by giving more direct access from the southern to the northern suburbs, and moving the business centre from Bridge Street to Castle Junction. The conversion of the dirty Black Staff stream into Ormeau Avenue did much the same for the Ormeau district. New and dignified buildings gradually arose: the Water Office (1882), the General Post Office (1886), the

Free Public Library (1884-8), the Ulster Reform Club, banks, hotels, warehouses, shops, often observing a civil uniformity of elevation.

Sanitation. Within the borough boundary large areas still needed to be sewered, the Lagan Village district not being finished till 1885. Conditions were such that, even in the Windsor area, surface drain gratings gave out ill odours, while the tidal River Lagan continued to be the chief borough sewer till about 1888, when a new Main Drainage Scheme began to free the river from this duty. But neither sewage purification nor refuse destructors were in use till ten years later.

Even in 1890 the general death rate was 29.5 per thousand, as compared with 17.5 in 1920 and 13.6 in 1927; while for zymotic diseases the figures were 5.2, 1.5 and .9 respectively.

Nobody worried much about manure heaps, stagnant water, flies, or midges, except to use meat covers, fly papers and tobacco smoke. Mosquitos had not yet begun to interest physicians, or even reached Ulster; but fleas had entry to the best houses, on the introduction of coachmen, dogs and cats, patronized the hotels of county towns, and even drove their carriages in the Royal Aquarium, London, for a small extra charge.

Indoor Sanitation was nearly as bad, from defects of knowledge and of apparatus. The indispensable glazed earthenware appliances of to-day had not come into use, pictorial delph, metal and stone being bad substitutes, often with insufficient water. Baths were generally of soldered metal, painted, not enamelled, noisy, uncomfortable, small, and apt to spill or leak, especially if movable. If fixtures, with a piped water supply saving labour, the waste connections with the sewer might be a greater nuisance and danger. To intercept the waste from baths and sinks by an open-air trap was quite a new idea.

Health in the Home was due more to the ceaseless vigilance and activity of the lady of the house, to her personal selection and daily inspection of food supplies, to systematic and thorough house cleaning, and to her careful training of her domestic staff, than to any municipal control. Let nobody in these days affect to despise the ability and devotion of the Victorian mother, who managed so cleverly

her difficult household, with its large family and small income, much hand labour, little mechanical aid, and few diversions.

Heating. In the well-to-do merchant's house in 1880 good cheap coal was the usual means of heating, in large wasteful barred grates, with iron backs and fenders and fire-irons of steel, needing much work with black lead and emery. Tiles, with brass rails and equipment, were new fashions; barless slow combustion grates were unknown. Gas fires, chiefly used in cookery classes, were rare and dubious. Stoves and hot water systems, found in greenhouses, churches, and other public buildings, were seldom tolerated in private houses. For cooking and for boiling water the coal-burning range was almost universal, gas ovens, geysers, and oil cookers not having come into use.

Lighting in towns was by coal gas, burnt without mantles, and often giving a poor light and a headache to the user: in the country, paraffin oil and a Duplex burner gave more trouble, less discomfort, and perhaps a worse light. The central draught oil burner and the gas mantle were not yet in general use.

Electric Light, shown in laboratory, lecture-hall, and London Exhibitions as a new invention, and displaying since 1878 its cold and fitful radiance from a huge noisy arc lamp, was not yet found in the house, and rarely in the street.

The Electric Telephone, invented in 1876-8 and shown in Belfast when quite new, when I wept at being judged too young to be taken to the lecture on it in the Ulster Hall, did not appear in Belfast offices till 1881, and not till some years later in private houses.

There were few electric bells, and no electric lifts, or vacuum cleaners in the home; and no typewriters, girl typists, cash registers, or adding machines in offices.

Photography was a laborious and risky chemical hobby, for there were no folding pocket cameras with instantaneous film rolls; and the amateur usually had to develop and print from his own plates, and very badly too.

No one dreamt that the Stereoscope, the Magic Lantern and the Panorama would be supplanted by moving photography.

Mechanical Music was passing from the old Musical Box and Barrel Organ to machines playing tunes by perforated discs or rolls of great variety: but the reproduction of the human voice, or of an orchestra, by the Phonograph, invented by Edison in 1877, was still merely a new scientific wonder.

There was no Radium, Radiography, or Wireless Telegraphy; no inoculation against any disease except Smallpox; no effective treatment for Tetanus, Rabies, Phthisis, Cancer, Leprosy, or Diabetes.

Roads and Transport. Roads were usually "macadamised" by hammering and rolling in, when wet, pieces of broken stone small enough to go through a ring two or three inches in diameter. Before long, according to the class of stone and amount of traffic, the surface wore down into mud puddles or dusty hollows. In Belfast, streets subject to very heavy traffic were paved with "square sets" or with "cobble stones," which were durable, but noisy, wet in winter, and slippery for draught horses.

Transport on land, usually a very slow affair, was still based mainly on the horse, and, for long distances, the steam-engine, when a railway served the district.

Sons of well-to-do parents, if living in the country, often had a pony to ride. A youth might ride a high bicycle, an elderly man a tricycle, or a form of low bicycle, sometimes called a "Kangaroo," and especially associated in Belfast with Professor Everett of Q.C.B., whose stately progress on one of these quaint machines, in the teeth of a gale that divided his long grey beard into halves, was a striking example of man's triumph over nature.

But the modern type of "Safety Bicycle" came into general use only about 1887-8, and often cost nearly £20; so it was rather a luxury, to be paid for perhaps from Intermediate Exhibition or Prize Money.

When from 5 to 10 miles an hour was a fair speed for a horse vehicle, and 20 to 25 for a railway train, frequent winter travel, especially by road, was a tedious nuisance, and the area of possible daily travel was small, perhaps lying within a 15-mile radius.

A schoolboy coming from Bangor to the M.C.B. would spend 40 minutes in the train, and another 25 in the slow two-horse tramcar, with its top seats open to the weather, or 40 minutes if he walked from the railway station.

For some years he could save time by taking a rare train from Oxford Street, on the Central Railway, which ambled gently round part of the town's circumference, to Lower Crescent. The halfpenny steam ferry, near the Custom House, would also save nearly five minutes by the road route. But progress soon robbed him of both these aids.

So, even if trains suited school hours, a lad from Bangor might lose nearly three hours a day in travelling, less such time as he could snatch for reading on the journey, thus strengthening his legs at the cost of his learning.

If he lived at a small station, such as Carnalea was in 1883, where the platform was made of wooden railway "sleepers," and the station building was the wooden body of a former luggage-van, at which few trains stopped, he might have to walk delicately for a mile or two along the rail track, to catch an early train at its nearest stopping station, so as to attend some specially early class. It was all very good for the legs, if not for the boots.

Conditions.

(b) *Intellectual and Cultural.* These only indirectly affected a boy's life, but some may be mentioned. During the period 1880-1888 Ireland, and even Ulster, was usually in a ferment economically, politically, and socially, and many of the events of the period make terrible memories. But these must be swept aside, or merely mentioned as a tragic background to one's early life.

Cultural memories, though limited, are pleasanter. Though it was the period of a great revival of pictorial and sculptural art, inspired by ancient Greek masterpieces, this revival scarcely touched Ulster.

The so-called *Aesthetic Movement* did, however, put in a rather exaggerated and absurd appearance in our houses, with its dull sad colours, its very black oak, its sunflowers and lilies. It was fortunately humanised by Japanese Art, a great revelation.

For *Choral Singing* we had the Philharmonic Society; but no Musical Competitions or Cathedral Choir.

In *Music*, the lovely operas of Gilbert and Sullivan, then new, succeeded each other with delightful variety. But Grand Opera was French or Italian: Wagner's operas had not yet arrived.

In *Natural Science*, apart from the Queen's College, the *B.N.H. & P. Society* and the *B.N.F. Club* were active and useful, but without any Junior Division.

Belfast had as yet no Free Public Library, and no Free Public Museum, though the Old Museum was open to the public at a small entrance fee, and the *Linen Hall Library* was in its old home. Neither was there any Public Art Gallery. There were about three public statues in the town, apart from those in cemeteries or churches.

The Drama was not badly served at the Theatre Royal in Arthur Square, burnt and rebuilt in 1881. It was visited by such leading actors as Barry Sullivan, Henry Irving, J. L. Toole, the Terrys, and Edward Compton; as well as by the Carl Rosa, the D'Oyley Carte, and other opera companies. But many prosperous people disapproved of the theatre on principle, irrespective of the type of play performed: so the way of dramatists and actors was hard in Belfast.

Lastly, the *Botanic Gardens*, supported by a Society of Subscribers, divided its attention between the big glass Palm House, Carpet Bedding, and Fireworks.

Education of Boys in Ulster, *circa* 1880.

There were practically no real "Preparatory Schools" in Ireland, such as those in England, organized to train clever young boys for Entrance Scholarships into large Public Schools.

There were a few Dame Schools, with classes for young children of both sexes.

There were also, of course, the National Schools, which gave a sound primary education for children of the artizan class, and others not intending to enter a profession.

But as these two sorts of schools would not meet the needs of the children of the professional or higher business classes, most young boys were taught at home by *Resident* or *Visiting Governesses*, without special training or other qualifications, or by *Visiting Tutors* of some academic standing and teaching experience, but also usually untrained. The courses of instruction would vary with the parents' desires and the teachers' experience.

Few, if any, secondary schools in Ireland offered Entrance Scholarships.

Choice of School. Owing to the slowness of transport, the nearest good school was usually chosen, especially as the town spread and schools began to move outwards, unless a particular school had some special attractions.

So my grandfather and father, who lived in and inherited Trainfield House, went to the old Belfast Academy, and my cousins of Laurel Lodge to the Academical Institution, to which we had been early subscribers.

After my grandfather's death in 1866, my father let Trainfield for many years, married, and in 1880 was living with his wife and young family in the old house of the Suffern family, "Avonmore," Derryvolgie Avenue. So, as everyone thought highly of Dr. Parker of the Methodist College, which was so near and had such a nice situation, my brother George and I, little chaps of 9 and 10 years old, walked down the Malone Road to join it, early in 1881.

When a family with boys of school-going age moved ten miles out into the country, as we did in 1883, and many others about that time, so much time was spent in going to and from school that there was a tendency to send the elder boys to some boarding school.

As the large Public Schools in England, and even those in Scotland, were so much better endowed and equipped than those in Ireland at that period, parents who could afford the higher fees, and who wished to give their sons a fuller organization, closer supervision, more varied experience, and wider outlook, than in a small local school, often sent them to some of the chief Public Schools in England, when they were old enough to go so long and unpleasant a journey.

Rossall, as the nearest and easiest reached, got many Ulster boys. My father even had gone on to it from Belfast Academy. Rugby, Cheltenham, Clifton, and distant Winchester got their share of Ulster youth; as did, in Ireland, St. Columba's College, especially those aiming at Dublin University.

Secondary Education in Ireland in the mid-Victorian period was so ill-equipped to meet the needs of a scientific age, or even to satisfy the desires of a quick-witted people,

that it was decided by Lord Beaconsfield's Government to use the surplus funds of the Disendowed Church of Ireland to encourage it.

The method chosen was to set up, by Act of Parliament in 1878, an *Intermediate Education Board for Ireland*, consisting chiefly of eminent scholars, judges, and clerics of different religions. This Board organized a huge annual written examination, held in many centres all over Ireland on the same days, usually in the latter half of June, the hottest weeks of the year, and generally for six hours a day, and for some seven to ten days, with an occasional free day.

"*Intermediate*" *Methods.* The candidates were boys and girls, normally under 18 years of age, arranged for examination in three *Grades* according to age, viz., *Junior*, under 16; *Middle*, under 17; and *Senior*, under 18.

Boys and girls taking the same subject were examined on the same paper at the same time, but in different buildings, and were not in competition with each other, their respective examination results being published in separate lists and volumes.

A choice of fifteen subjects was given, each with its own mark maximum, varying from *Greek*, *Latin*, and *English* (1,200 each); *French* and *German* (700 each); *Italian*, *Celtic*, *Arithmetic*, *Euclid*, *Algebra*, *Natural Philosophy*, *Chemistry*, and *Drawing* (500 each), to *Theory of Music* (300) and *Book-keeping* (200), in the Junior Grade. The subjects and maxima varied, especially in Mathematics, in the Middle Grade with the disappearance of *Book-keeping*, and in the Senior with the introduction of *Trigonometry*.

In the language subjects certain specific works in prose and verse, usually in annotated editions, were set as texts, besides Grammar, Composition, and Translation. In *Greek* and *Latin*, History was also included; in *English*, the History of England and of Ireland, Geography, an outline of the History of English Literature, and an English Essay, were likewise included.

Each candidate had his own Examination Number: so his name did not appear on his paper.

By 1886 some 3,500 boys were examined annually in the Junior, some 550 in the Middle, and some 250 in the Senior Grade, including in each case a few over the normal age.

The proportions per cent. of candidates of the normal ages who passed were:—Junior Grade, 57; Middle, 77; and Senior 75, approximately. These numbers and percentages continued fairly constant for some years.

From this it is plain that, of the boys who sat for the Junior Grade Examination, *nearly half were unfit to pass it*; while, of those who passed it, *less than a fourth passed the Middle Grade* the next year, and *less than a tenth the Senior Grade* the year after. Many in fact left school for business at, or just after, the Junior Grade stage, i.e., under 16.

"*Intermediate Results,*" *financial and other.* Candidates who got Honors (half marks) in any subject could count their marks towards the winning of Medals; Exhibitions, varying from £15 to £25, and tenable for two or three years in the higher Grade or Grades; and smaller prizes in money or books, some of which were for excellence in one paper only, such as Composition, or in groups of subjects or of papers.

The names and marks of those who won Honors, and the names of those who passed with less than half-marks, were published in two annual volumes, for boys and girls respectively, and also in the daily press. Names and marks of those who failed were not published.

Large numbers of small sums of money were thus distributed among parents and pupils, and helped many poor and worthy students.

Substantial Results Grants were paid to the Managers of Schools, according to the number of passes, or passes with honors, secured by their pupils. These grants were usually shared between the Manager, the Headmaster, and the Assistants, and gave much needed help to schools and teachers. Substantial sums paid as Examiners' Fees also aided learning. Thus a fairly good general secondary education, stress being laid on Languages, Literature, and Mathematics, was spread all over the country, with striking rapidity and success. The system did not encourage specialisation in any branch, and promoted breadth rather than depth of culture; but at least it provided a common course of reading, and a just and impartial examination for young people of different religious views.

"Intermediate" defects. Unfortunately these grants were given solely on examination results and certified attendance.

There was no inspection or control of School Buildings, Sanitation, or Equipment; of the Character, Qualifications, or Pay of Teachers; of School Fees; or of Sports Grounds, Gymnasia, etc.

Nothing was done to improve any of these, and nothing to prevent the injury of good schools by the opening of badly equipped ones, charging lower fees, and run mainly for private gain through Results Grants. This under-cutting did harm to many old established and well managed schools, and tended to lower the tone of education, and the financial prospects of good teachers, and to discourage expenditure on buildings, equipment, and sports grounds.

No attempt was made to secure that monetary Exhibitions went only to students in real need of the money. Many were won by children of quite well-to-do parents.

The grading of pupils was inadequate; it being assumed that those of the same age had the same knowledge in each subject, and could be well taught in the same class.

The literary works chosen for study were not always of high merit, while many great writers found no place in the programme.

Thus, though we read plenty of Xenophon, some of Homer's *Iliad*, a play of Euripides, and even the *Panegyric* of Isocrates; and some of Virgil's *Aeneid* and *Georgics*, Cicero, and Tacitus; no part of Homer's *Odyssey*, no Sophocles, Aristophanes, Plato, or even Horace, not even in selections, formed part of our three years' course of classical reading.

In French, too, the selection of authors seems open to criticism on the ground of frigidity, and even dullness.

In English the authors were, on the whole, very well chosen, no easy matter in the circumstances.

In general, too few books were prescribed, and too much time was spent in going three times through a set book and the notes on it, instead of reading more books by other authors.

Examining, too, was not above criticism, at least in History, and still more in Geography, attaching too much value to a mere memorising of dates, facts, names, and superficial features, even in the Senior Grade. This may have been partly due to the very poor text books on the market, especially in Geography, and to the lack of specialist teachers of History and Geography. Beyond Physical Geography, an excellent subject, no attempt was made to interest boys in Nature Study.

In Science, the system lent itself to book and blackboard, rather than to laboratory work. Ganot's *Physics* and Roscoe's *Chemistry* too often usurped the place of practical experiment and demonstration.

Botany, like Domestic Economy, was seemingly fit only for girls. Mechanics was studied by elementary mathematics, a blackboard, and a piece of chalk in the hand of some keen mathematical master.

The Methodist College: Early Aims and Prospects.

When, after a display of great courage, vision, and liberality on the part of the members of the Methodist communion and their friends, in 1868 an imposing building, costing nearly £40,000, and endowed with a further sum of £25,000, was opened for educational work, on a fine site of some sixteen acres, opposite the Botanic Gardens, close to Queen's College, with a fine approach from the middle of Belfast, in a rising, well-to-do, residential suburb, near a healthy and beautiful country district, it was clear that much care had been taken over the project.

It was natural that the Methodist community should wish for an institution of their own, where the sons and daughters of their clergy could receive a good secondary education on beneficial terms, and their own children could get education based on more definite religious instruction than was provided by the existing old established non-sectarian schools in Belfast. As this need for definite religious instruction was also felt by many members of the Church of Ireland, the Presbyterian Church, and other evangelical communions, there was good reason to expect ready support in a friendly spirit, and a large number of pupils from those Bodies, so long as the religious instruction was acceptable to all.

In this hope the founders of the M.C.B. were amply justified, as for many years its pupils included large numbers of these various communions, meeting daily on the friendliest terms, studying their Bible together, and learning the Psalms and the Gospels, without the slightest concern as to which form of church government, or theological theory, claimed the allegiance of their parents. Indeed it was only when the Wesleyans left the room to attend their special Catechism Class, that we knew which of us were Methodists. They were usually quite in a minority. So little did we hear about Methodism that, I regret to say, we usually left the school scarcely knowing anything about John Wesley, neither the greatness of that splendid man, nor the wonderful work he did for religion and humanity.

If that was a " Sectarian " school, one might do with more of them.

It was natural also that the Methodist Church should wish to have its own Theological Seminary for the training of northern candidates for its Ministry, and should make use of part of the Methodist College for that purpose, including the housing of its Tutorial Staff and Students, from 1878; but this development probably increased the financial burdens of the College.

Further, from about this time began the Irish Intermediate Education System, with all its possibilities, uncertainties, and responsibilities.

It was clear that the future development, and even the efficient working of this threefold College, would depend largely on the future development of the Windsor suburb and the open country beyond it, from which pupils would mainly be drawn and fee-income derived. Unfortunately the development of this large and since populous area lagged greatly for many years; and it was in other districts, Fortwilliam, Cliftonville, Belmont, the Knock, the Ormeau Road, and the Co. Down side of Belfast Lough, that houses grew up rapidly. These new districts fed rather the two older Belfast schools, the *Academy*, since about 1880 in fine new buildings on the Antrim Road, and the *Academical Institution*, with its central site, strong financial position, eminent teaching staff, and striking academic successes,

It was indeed fortunate for Belfast that, in the period 1880-1890, the educational pace was largely set by so strongly staffed and well-equipped a school as the *Institution*, with its old prestige, and its unique achievement in Ulster of having two of its former pupils Senior Wrangler at Cambridge in two successive years, A. J. C. Allen in 1879, and Joseph Larmor in 1880, besides many brilliant young men in other branches of Science.

But it was no easy task for a young school, just twelve years old, to hold its own in such a friendly contest for the honour of Ulster; and the unecomonic competition of smaller schools in country towns, keeping down the fee income, made it still harder to staff and equip the M.C.B. as well as might have been desired.

Several of the junior masters had had but little teaching experience when they joined the Staff.

The Class Rooms, though well-lighted and warmed, often by large open fires, looked bleak, grey and dismal, and were not provided with either wall illustrations or really good maps, which were scarce in those days. Doubtless the Kindergarten had its object lesson pictures.

It was probably also due to financial stringency, as well as to lack of effective demand from the parents, that, though the *Academical Institution* had from at least 1878 a Laboratory in charge of a well-qualified Science Master, the M.C.B. from 1881 till 1888 had its small Chemical Laboratory closed most of these years, had no regular Science Master, and had to procure the services of a clever young graduate and former pupil, one of the Wheeler family, to give us some much appreciated demonstrations in Chemistry. A similar cause probably prevented the Gymnasium and Swimming Bath being opened to day-boys for several years. As a result, my brother and I became pupils at the excellent new Gymnasium of the *Institution*, opened in 1883, and so pupils of both schools at the same time, I suppose.

This early financial difficulty must be recalled, to explain to a later generation the narrow limits within which the Governing Body and the Headmaster had to work in the brave days of old, when both faith and courage were needed to lay firm foundations on which to rear the later, larger, and far more complete organization. It was indeed the day of small things in 1881.

THE METHODIST COLLEGE UNDER DR. H. R. PARKER.†

Much of the school's success during the period 1880-88 was due to its Headmaster, Henry R. Parker, LL.D., ex-Scholar, and Senior Classical Moderator of T.C.D. A man of large and generous sympathies, incapable of meanness, injustice, or rudeness, he led with dignity, tact, and patience a varied assortment of masters, pupils, and parents, and steadily built up for the school an influential and widespread connexion among the leading business and professional families within the large area around Belfast, and especially in the Windsor suburb.

His fine scholarship, charm, and kindly discipline, his stimulating teaching, his patience, humour and courtesy, made him both loved and revered by his pupils and gave him great social popularity far beyond the College bounds.

As a friend of his son, and a frequent guest at his hospitable board, when attending the Debating Society, I well remember his having to work at night at what looked like school accounts, and his telling me, with a sigh, how, when he had taken down recently from a top shelf his old copy of Pindar, the poems had seemed as if written in some strange tongue.

It was sad that so much of the abilities and time of this fine scholar and genial gentleman should have had to be sacrificed to administrative routine, and that narrowness of resources so greatly limited his influence for good.

His old pupils will not readily forget him, or the spirit in which he worked.

Limitations within which he had to work. For several years, I learn from a good source, the financial resources of the College gave anxiety to its management, and this fact must have increased Dr. Parker's cares and work, and greatly limited the development of the school.

Low Fees were inevitable in Belfast at this period, owing to the competition of other schools, and to the unwillingness of many parents to pay more.

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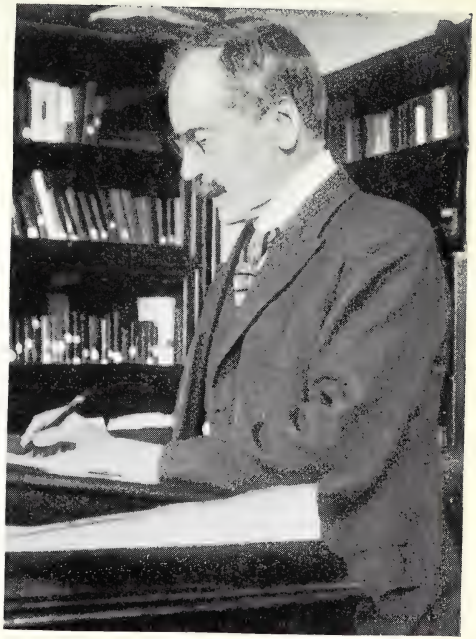
†I have to thank the present able Headmaster and his Secretary for much courtesy, including access to the Fee Register in Dr. Parker's time, and the loan of an early and a later Prospectus, and for permission to photograph a fine likeness of Dr. Parker. They are, of course, in no way responsible for any opinions expressed in this Address.

REV. ANDREW MACAFEE, B.A., R.U.I.,
First Resident Master.

Photo by Edge, Ltd. Llandudno.

HENRY R. PARKER, LL.D., T.C.D.,
Headmaster.



R. F. DILL, M.A., Oxon.,
First Classical Master.

BRITISH MUSEUM
NATURAL HISTORY

For a boy above 12 years of age the General Tuition Fee was £12 12s 0d a year, with small extra charges for fuel and stationery. Younger boys paid still less.

Extras, e.g., French, German or Italian cost £4 4s 0d a year; or, for two modern languages, £6 6s 0d for both. Music £6 6s 0d and Singing £2 2s 0d a year, Gymnastics (when available) £1 11s 6d, Library £1 1s 0d a year. Drawing 12s 6d a term, with 4 terms to the year. A 10% reduction on these fees, except Extras, was given to brothers; and Ministers' sons paid half rates, except for Music, Gymnastics, Library and Drawing, but "got no further discount."

Boarders paid besides a fee varying from £26 5s 0d to £31 10s 0d a year, with £5 15s 6d a year for Medical Attendance, Washing, Drill, and Pew Rent.

Holidays were two months at Midsummer, ten days at Christmas, four days at Easter.

School Hours. As the pupils were mainly day-boys, often coming from distant homes, the normal hours were very few, viz., Monday to Friday, 10 a.m. till 3 p.m., including a short morning prayer, with at 1 p.m. an interval called "Recess" of half-an-hour, sometimes reduced to fifteen minutes by the claims of Geometry, or to nothing by a punitive detention. Saturday, 10 till 12. But boys going home by train often left school at 2.35 p.m., to catch the 3.15 train to Bangor or elsewhere. Senior boys sometimes had to attend extra classes about 9 or 9.30 a.m.

Records and Rewards. "Record Books" with the daily marks in each subject, including Conduct, signed weekly by the parent, stimulated diligence, which was further encouraged by Weekly Honour Cards for specially good work, and Certificates of General Proficiency, in each case nicely engraved with a view of the College.

Book Prizes were given for 85% of the marks in any of the several subjects in the Annual Examination.

Then followed the excitement of the Intermediate Examinations, with the thrill of seeing one's name in print, and bringing honour and money to the school.

My brother and I had a fair share of all this, and in due course won and retained Junior Grade Exhibitions, and got various book prizes. All seemed to be going pretty well.

Punishments were simple: standing up for inattention; and for misconduct or bad work, an imposition, though not "lines," with or without "detention" after school. More serious cases would, doubtless, have been reported to the Headmaster; but I cannot recall a flogging, if such treatment was ever administered.

Masters were mainly non-resident; so day-boys seldom met them out of school, which was unfortunate for both, as this greatly limited their influence in forming the tastes of their pupils. A couple of Resident Masters, and two or three Juniors, who played games at the College, were, perhaps, exceptions.

Further, salaries, even with a share of Results Grants, and, still more, ultimate professional prospects and conditions of service, were not attractive enough to keep many of the ablest masters more than a few years. Unlike those in the well-endowed English schools, there was little to look forward to, except the headmastership of some other ill-endowed school.

Changes in the Staff occurred frequently, so that, of a Staff of 21 in 1882, only 5 were still there in 1892.

Some Memorable Worthies. The qualifications, abilities, and temperaments of our masters varied greatly, as may be judged from the following attempts to describe some of those one remembers best; though many more did good work for the School.

Mr. Isaac Bradshaw, French Master, had a delightful urbanity of manner, and was an excellent teacher of grammatical French on old lines. As he walked about his class-room he chanted in a clear musical voice pages of De Fivas's *Grammaire des Grammaires*, or of Fénelon, De Maistre, Corneille and Racine. He took a real interest in his pupils, and they worked for him and loved him.

Rev. Andrew Macafee, B.A., Master for Junior Grade English, later first Resident Master, and eventually much respected Presbyterian Minister at Omagh, was an excellent teacher, managing a large class splendidly. He took much trouble over Geography, using the blackboard with great effect to show the relative positions of British towns, and he made us love the Psalms, and such poems of Scott, Byron, and Goldsmith as had been chosen for us, and Addison's *Spectator Essays*. Of his pupils at least one got

first place in Ireland in English Composition. We all greatly liked and respected him, and still revere his memory.

Mr. R. F. Dill, M.A., Scholar of Lincoln College, Oxford, Senior Classical Master, a fine classical scholar with a wide knowledge of English literature, took the Classical and English work of the Middle and Senior Grades, and was a worthy representative of a family of great scholars, with a fine critical gift and sense of style.

We were lucky to have such a teacher to guide us through Euripides, Tacitus, and the *Georgics* of Virgil, as well as through some of the greater works of English Literature.

We had the greatest respect for, and confidence in Mr. Dill, both as scholar and man, when in his classes, and still, I hope, hold him in high and warm regard. Alert and active, he was a good disciplinarian as well as a thorough teacher. Several of his pupils took very high places in their examinations, thanks to his fine work.

He was later more widely known as Head of Foyle College, before his retirement to live at Hereford.

Mr. James A. McNeill, ex-scholar of Queen's College, Belfast, as First Mathematical Master was one of the ablest and most forceful members of the Staff, and one of its most successful teachers. His career at Queen's College, Belfast, had been full of promise, as he had won the Sullivan Scholarship for 1873-4, two years after the future Sir Joseph Larmor had won it, and followed Larmor and A. J. C. Allen, the Belfast Senior Wranglers of Cambridge, by winning the *first* of the Junior Scholarships, Science Division, in his first and second years, the second year scholarship running on through his third year, 1875-6.

Then, instead of taking his degree, or going up to Cambridge, an unkind fate forced him to give up an academic career, to earn his living as an undergraduate teacher of school mathematics.

But his indomitable spirit and ability turned defeat almost into victory. In a few years, as First Mathematical Master at the M.C.B., his former pupils were winning the distinctions which might have been his.

A man of keen, alert, and vigorous intellect, great industry, courage and determination, he spared no trouble

to help those who showed ability and worked well, while his caustic sarcasm was dreaded by the backward or unprepared even more than the inevitable punishment which followed.

His work on the blackboard was brilliant, rapid and clear, while nothing in the large hall, where he taught his big classes, seemed to escape him.

In 1888 three of his former pupils took the highest mathematical honours in four Universities, viz., *J. E. Campbell*, won the Senior Mathematical Scholarship at Oxford, and a Fellowship at Hertford College, following his First of First Class Honors in Mathematics at his degree; *W. M'F.* Orr was Senior Wrangler at Cambridge, the only Senior Wrangler from the M.C.B., and won the £500 Mathematical Studentship at R.U.I.; *B. H. Steede* was first of the Senior Moderators in Mathematics, and won the £700 Mathematical Studentship at T.C.D.

The same year Mr. M'Neill took his B.A. degree at R.U.I., and married a member of one of the oldest and most eminent business and professional families in Ulster.

Mr. George Trobridge, Head of the Belfast School of Art, which had a branch at M.C.B., a water-colour artist of merit, was a slight, pale, delicate-looking man, with a thin hay-coloured beard, believed to be a Vegetarian, Anti-vivisectionist, and former pupil of Ruskin. He floated about in the quiet atmosphere of the Drawing Class like some pale wisp of cloud on a mountain, while we poor lads struggled with the tiresome curves and arabesques of South Kensington, or found a welcome relief in Geometrical Drawing, Elementary Perspective, Model Drawing, and Shading.

Mr. J. D. Stuart, Writing and Book-keeping Master, who looked like the late Prince Consort, and was ever courteous and kindly, adorned with his beautiful writing our prize books, certificates, and blackboards, and showed us that writing was still a fine art. He also taught us a little book-keeping, and how to rule lines with a roller, and sold us pencils, etc. So we all liked him greatly, and worked hard at Vere Foster's Copy Books, and later on at our "Book-keeping by Double Entry."

Mr. Samuel Browne, "Professor of Elocution" and Master for Junior English in 1882, a tall, gaunt, elderly

man with a long grey beard, a soft black hat, and a long old frock coat, taught the lowest class above the Kindergarten. He had a watchful eye, a deep, resonant, dramatic voice, and vigorous action. He taught us the regnal dates of England from Egbert to Victoria, and other things well, and delighted us with his recitations at the end of term.

Mr. A. G. Roddie, Junior English Master, succeeded Mr. Browne in his class work. He was a red-bearded, active, cheery-looking man, with a twinkle in his eye, and a keen sense of humour. A splendid disciplinarian, he was much liked, even as detention master.

Rev. C. E. Coade, B.A., Theological Tutor. The mildest of Ministers and the ever-courteous Vice-President of the Debating Society.

Mr. R. J. F. Donald, Assistant and later First Classical Master. A young Scholar of Q.C.B., afterwards a graduate in high honors, whose excellent Latinity was equalled only by his patience and good nature.

B. Hobson Carroll, Mus.D. of T.C.D., Music Master, a tall, handsome, genial, bearded, active man, was most decorative in his brilliant hood and robes, and gave a welcome splendour and variety to our Prize Distributions. His clever, fragile-looking little son was my first school-friend. Dr. Carroll with his family settled in U.S.A., but he returned as an old man and died in Ulster.

Rev. J. W. M'Kay, D.D., President and Treasurer of the College, whose signature appeared on our prize books above that of Dr. Parker, was a grave, mysterious figure, in silk hat and black cloak, who lived in the Central Tower, and sometimes silently entered, stood a few minutes inside, and as silently left our class-room during a lesson.

T. K. Wheeler, M.D., Medical Officer, an eminent physician, and the ancestor of several others, we knew by sight, and marked his active, busy figure on his rounds of duty. His sons were popular pupils, or ex-pupils of the school; and one of them taught Chemistry so attractively that some of us nearly blew our eyes out, or poisoned our relations, at home, in our scientific zeal.

Some noteworthy pupils of about this period (1880-88) may be mentioned, e.g.:—

John E. Campbell, M.A., Oxon., F.R.S., Fellow and Tutor of Hertford College, Mathematician.

Major Sir Richard W. Barnett, M.A., B.C.L., Oxon., M.P., International Rifle Shot and Chess Player.

Sir Thomas W. M'Mullan, sometime M.P. of Northern Ireland.

Hiram P. Wilkinson, M.A., B.C.L., Oxon., late Crown Advocate of Shanghai, and Judge of H.M. High Court for Weihaiwei.

W. M'F. Orr, M.A., Cantab., F.R.S., sometime Senior Wrangler, and Fellow of St. John's College, Cambridge, late Professor of Mathematics Royal College of Science, Dublin, and University College, Dublin.

Sir Louis J. Kershaw, K.C.S.I., C.I.E., Deputy Under-Secretary of State for India.

Sir William Maxwell, K.C.I.E., M.V.O., late Director-General of Posts and Telegraphs, India, and Additional Member of the Governor-General's Council.

Robert M. Henry, M.A., Professor of Latin, Queen's University, Belfast.

Paul Henry, R.H.A., the distinguished Landscape Painter.

Rev. James B. Woodburn, M.A., D.D., Historian and Divine.

Major D. G. Shillington, D.L., M.P. of Northern Ireland.

W. M. Fullerton, Chairman of Directors, Ulster Bank.

Culture.

Provision for this was scarcely expected from a day school, but two instruments were supplied.

The Debating Society was founded or revised in 1887, with Dr. Parker as President; several of the Staff as Vice-Presidents, Rev. C. E. Coade being often in the chair; H. B. Parker as Secretary; Mr. A. M'Afee as Treasurer; and a Committee of eight pupils, two being ladies. It met fortnightly, and held many lively debates.

The Methodist Collegian, ably edited by Mr. R. F. Dill, began in October, 1887, and was published thrice a year. It was a bright little paper, with quite interesting articles, poetry, and letters from Oxford University, comparing very well with other school journals. Its chief contributors were pupils, or former pupils, of the school;

Methodist College Debating Society.

SESSION 1887-88.

President:
DR. PARKER.

Vice-Presidents:

MR. CHARLES.
REV. MR. COADE, B.A.
MR. DILL, M.A.
MR. STOREY.

Secretary:
MR. H. B. PARKER.

Treasurer:
MR. M'AFEE, B.A.

Committee:

MISS M'CUTCHEON.
MISS WILLIAMSON.
MR. R. S. LEPPER.
MR. O. E. M'CUTCHEON.
MR. F. M'MULLAN.
MR. D. P. MERCER.
MR. W. MOORE.
MR. J. H. PRICE.

METHODIST COLLEGE, BELFAST.

School Magazine.

THE First Number of a **School Magazine**, to be published bi-annually, will be issued about the end of September. Its title is to be the

"Methodist Collegian."

The Magazine will embrace —

1. A record of the Events of the School. Results of the Intermediate Examinations. Results of the School Examinations. Distinctions gained by past pupils.

2. Essays and Papers on general subjects—to be contributed by members of the College.

3. The Ladies' Column.

4. The Boys' Column in which there will be a record of School Games, with results of Matches played.

5. Letters from past pupils at the University.

6. Verses and Parodies.

7. Varieties, which will include Short Stories, Anecdotes, Jokes, Conundrums, Acrostics, &c.

N.B.—The Magazine must as far as possible be written by the pupils of the College.

Pupils are invited to prepare contributions during the holidays. Both [illegible] departments 2 and 7. Contributions will be received [illegible] on September 14th.

R. F. DILL, M.A., Editor.

BRITISH MUSEUM

but sometimes a master wrote for it. It lasted several years, and embalms some early literary efforts of my classmates and myself.

That blessed word "Co-education," so often mentioned on Prize Days, did not much concern us on the boys' side, though some appreciated the fleeting view of the girl students on the front bench of the senior class-rooms, and tried to sketch them, without much result.

Games and Grounds. This aspect of school life was little developed. Games such as Cricket, Lacrosse, and Rugby Football were quite voluntary. Those who wished to play paid a small subscription to the club organizing their chosen game. Very few day-boys played in such games, but the boarders were keen and active.

The Football Club flourished most, and generally did well in matches, but the Grounds were quite inadequate, as only one regular football game could be played at a time, and the pitch was poor indeed in various ways.

There were a first and a second XV, however, who practised regularly and did their best; and juniors might run about on the gravelled playground, and kick a football for practice.

Still younger boys would play with marbles, chestnuts, and peg-tops—the stringed kind, *not* the whipped sort, or play "French and English," Tig, or Cross-Tig.

The covered Ball Alley was usually secured by the senior boys, but sometimes the juniors had luck.

As an indoor sport, paper dart throwing was not liked by the Staff.

Home influences were naturally predominant in forming the tastes and habits of day-boys, and their mental outlook.

Our religious views we derived from our parents and our places of worship, but we were fortunate in our friendships with boys of other religious allegiances, and in being taken to worship, or to share in congregational festivities, with our neighbours of other communions.

Our moral environment was that of the family, and of school friends coming from families as normal and strict as our own. So the problems of moral evil, so vital and so complex in the adult world, had not yet thrust themselves upon us. In fact the whole subject had been

perhaps unduly neglected. But such was the custom then.

Adventure and travel were not wanting; for our parents were fond of travelling, and took us with them usually, even when small children. So one's boyhood was dull only on wet days. Early memories were varied enough. Portrush, with fireworks in the White Rock Caves; Dunluce Castle; Newcastle, and Slieve Donard, climbed when quite young; a trip through the English Lakes, with Furness Abbey and the Isle of Man added. A longer journey was a summer at Oban, with steamer trips to Iona and Staffa, and far north, including the climbing of Ben Nevis at the ages of 10 and 9 respectively. Earlier still, skating on Lough Neagh, out to Ram's Island and back, in the severe winter of (I think) 1878-9, when we were 8 and 7 respectively; not to mention such milder pastimes as skating on Corry's Pond and the Bog Meadows, bowling hoops along the footpath of the Malone Road, visiting the Giant's Ring, and rolling coloured Easter Eggs—real eggs —on grassy slopes near the Lagan. Later followed sailing trips about the Lough; and a great sailing tour of 300 miles to, and about the West of Scotland, the *Log* of which was enshrined in the *Methodist Collegian*. Adventures on cycle and pony, not always happy, occurred. Short trips to Dublin, North Wales, London, and even Oxford, came fairly early. Lastly, a tour in Norway completed a boyhood far from monotonous.

Dispersion.

After my brother George and I had gone through the Middle and Senior Grade respectively, it was at last settled that we should finish our school life at some English Public School, as our father had done.

Clifton was suggested, but at the ages of 17½ and 16½ we were declared "out of the running," as compared with younger boys, when examined on Entrance Scholarship papers, and handicapped for age.

Rugby was then tried, and its Headmaster, Dr. Percival, who had made Clifton famous, was more liberal; so we passed our Entrance Examination duly, and were placed in the "Upper School," on the Classical and the Modern Side respectively, and assigned to the House of Rev. P. Bowden Smith, Senior Assistant Master.

I have never regretted since then this happy result, which led to so many new friendships and experiences.

But, alas, the inevitable dispersion of one's early friends soon began; and, in a few short years, happy classmates were scattered over the world, some to South America, others to S. Africa, to N. India, to S. India, some to that bourne from which no traveller returns. Even the survivors are too often hidden out of sight in the sandstorms of the years, and seldom meet, being perhaps mainly linked together by the memory of those early, simple, happy days in the old M.C.B.

Rugby School (1888-9) under Dr. Percival.

Origin and early history.

Rugby was founded as a Grammar School under the Will of Lawrence Sheriffe, Vice-Warden of the Grocers' Company, and grocer to Queen Elizabeth before and after her accession, soon after which event he got a grant of arms still used by the School. This Will provided also for an Alms House, and was made in July, 1567, the terms being altered by a Codicil in August, Sheriffe dying in September. Lands and houses in or near Rugby and London, and money, were left for these two objects. By the Codicil, however, instead of £100 at first left to the School, some 8 acres of land called Conduit Close, near London, and now in the heart of London, were bequeathed to it. This land yielded them £6 to £8 a year, but by 1900 yielded £5,700 a year, and for centuries has been the chief financial support of the School.

Litigation about the execution of the Will lasted a century, and though a schoolhouse was built, it was a starveling concern. By 1667 the School secured the Conduit Close land, and things began to mend, especially under *Henry Holyoake*, M.A. of Magdalen College, Oxford, who, having resigned his Chaplaincy there when James II expelled the Fellows, was Headmaster from 1688 till 1731, holding also a church living, and belonging to a Warwickshire family. He probably had one or two Assistant Masters, and perhaps some 90 boys.

18th century progress.

By 1750, when Wm. Knail, M.A., Oxon., was H.M., the School bought and moved to the Manor House and 8 acres of land, its present site, and put up new buildings; the whole cost, £1,800, being raised by mortgage on the London property by Act of Parliament.

In 1777 an Act of Parliament drew up a new scheme for the Trustees, who got power to remove the H.M. and Assistants at will, and to pension them out of Trust Funds. The H.M. was to get a capitation grant on each Foundationer besides his salary. Power was given the Trustees to raise up to £10,000 on the property. Eight Exhibitions to Oxford or Cambridge of £40 a year for 7 years were established.

Thomas James, M.A., Fellow of King's College, Cambridge, an Etonian, H.M. 1778-1794, a great mathematician and organizer, raised the School's numbers from 80 to 240, and arranged it on the Eton model, in six forms, the Sixth being the highest. He fixed the school hours at 5 lessons of an hour each on whole school days, much as at present, with two, or perhaps three half-holidays a week. The pay of Assistants was raised to about £100 a year, and they were allowed to hold Curacies. The H.M.'s net pay is estimated at about £800 a year from all sources, together with a free house and grounds.

James prevented tradesmen giving credit to boys for goods sold them, except on a note signed by the boy's boarding-house keeper, and he also fixed a boy's pocket money at from 3d to 1s a week, according to his rank in the School. But many boys lived in boarding-houses not managed by Assistant Masters, and not even James's great ability and energy could secure proper discipline. The elder boys might still "rag" the H.M., and "fag" the younger ones excessively; while for some days near the end of term an orgy of punch-drinking, window-breaking, and general rowdiness took place.

Rebellion.

Under James's successor, another Etonian, *Henry Ingles*, M.A., Fellow of King's College, Cambridge, "The Black Tiger," H.M. 1794-1806, the School broke into open rebellion in 1797, owing to the H.M. having been misled by a lying tradesman into flogging, as a liar, a boy who

had told the truth, and then fining the two highest forms when the School broke the tradesman's windows. On a Saturday, the boys broke all the windows of the Big School Room, and made a bonfire in the Close of its woodwork and benches, and of the H.M.'s books.

The Assistant Masters having gone away for the day, the H.M. got a Recruiting Sergeant and his party to guard the School House with fixed bayonets, while a local magistrate got the help of a body of horse-dealers using their long whips. The combined forces then invaded the Close, and surrounded the rebels on a small tumulus ringed by a water ditch, and called the "Island." The Riot Act was read, the horse-dealers forded the ditch in the rear, and soon the Great Rebellion was over, except the expulsions and the floggings.‡

Early 19th century.

The next H.M., *John Wooll*, D.D., of Balliol College, and Fellow of New College, Oxford, 1806-1828, was genial and popular, though he is said to have flogged a whole Form of 38 boys in 15 minutes, for going away from a lesson. In his time £35,000 out of £40,000 of Surplus Funds of the London estate were used to build the School House and Schools, now called *the Old Buildings*. The former *old Chapel*, since replaced, was also built between 1819 and 1821, at a cost of over £7,000. The Close, about half its present size, was improved by removing the hedges and banks of the three fields which formed it.

Arnold and the new spirit. The body of Rugby School was now well formed, but its living soul was breathed into it by its next and greatest headmaster, *Thomas Arnold, D.D.*, Fellow of Oriel College, Oxford, and formerly a Winchester boy, H.M. 1828-42. Volumes have been, and might be written about this "strong soul . . . . zealous, beneficent, firm," as his gifted son Matthew described him in a great poem, but a little here must suffice. Though some, like Mr. Lytton Strachey, have little sympathy with Arnold's fiery zeal for clean living, as well as sound learning, on the basis of a broad Christianity, those better acquainted

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‡See H. C. Bradby's *Rugby* (G. Bell & Sons), whose account of its early history is followed here.

with the problems that Arnold helped to solve fully recognize the greatness of the man and his work.§

Briefly, to follow the masterly summing up of Arnold's influence by Mr. H. C. Bradby, himself an old Rugby master, though Arnold accepted the general framework of the School, as derived through Eton from Winchester, and did not quite "change the face of education all through the public schools of England," he changed the moral atmosphere of them, and made them instruments, not merely for teaching knowledge, but for training character. Boys were to be trained to become not merely scholars, but Christian gentlemen.

His chief reforms were:—

(1) He increased the pay of the Assistant Masters; but made them give up their curacies, and become whole-time schoolmasters.

As boarding-houses fell vacant they were put solely under masters of the School: and so he abolished the so-called "Dames Houses," conducted by owners, often men not masters in the School.

(2) He won over the elder boys to the side of authority, by giving a responsibility for maintaining discipline and good conduct among the younger ones to the members of the VI (or highest) Form, and to them alone; and by giving them, within strict limitations, the right to enforce it, individually and collectively, by slight corporal punishment, a few strokes of the cane, if necessary. He also recognised, within strict limits, the right of VI Form boys to a reasonable amount of *fagging* from the youngest boys, mostly fetching and carrying, and tidying studies.

This was quite different from the so-called "Madras System of Education," a sort of monitorial teaching arrangement invented by Andrew Bell (1753-1832).

(3) He made his vigorous sermons in the School Chapel a means of awakening the religious and moral zeal of the boys, and of arousing their enthusiasm for all that was manly and noble.

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§ L. Strachey: *Eminent Victorians.* Contrast with Matthew Arnold: *Rugby Chapel.*

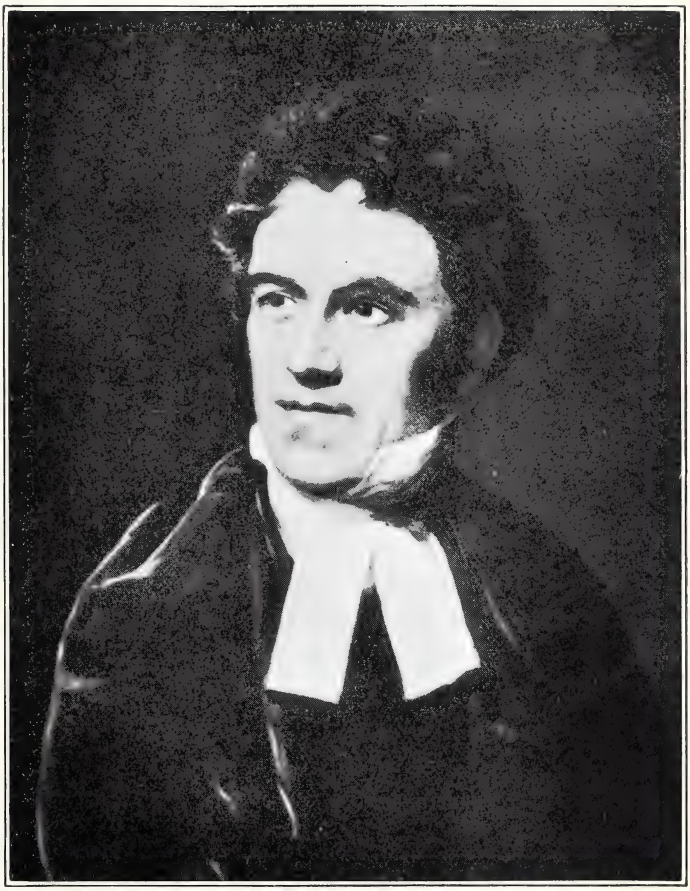


Photo by Speight, Rugby, from Painting.

REV. THOMAS ARNOLD, M.A., D.D.
Born, 1795. Died, 1842.
Headmaster of Rugby, 1828—1842.
Regius Professor of Modern History, Oxford, 1841.

BRITISH MUSEUM
NATURAL HISTORY

But, above all, it was Arnold's own generous, frank and enthusiastic nature, combined with good sense and good feeling, that carried his reforms to lasting success.

Arnold's Successors. The Headmastership of Rugby now became the road to high preferment in the Church. *A. C. Tait*, H.M. 1842-50, carried on Arnold's system, though without his striking personality, but allowed the numbers of the School to rise to nearly 500. He resigned to become Dean of Carlisle, and later Archbishop of Canterbury.

E. M. Goulbourn, H.M. 1850-58, and later Dean of Norwich, maintained the teaching efficiency of the School, many University Scholarships being won in his time. The School Close was increased by a third of its size.

Frederick Temple, H.M. 1858-70, who was later Bishop of London and Archbishop of Canterbury, a great but rather stern ruler, followed; "a beast, but a just beast," according to a young pupil.

In Dr. Temple's time, the School's Tercentenary was celebrated in 1867, and over £22,000 was raised by subscription to erect the "New Quad." Later contributions brought the fund to over £57,000 in 1887, also spent on new buildings or rebuilding. Unfortunately the Architect, Mr. Butterfield, adopted a style of architecture peculiar to himself, and quite out of keeping with the older buildings.

After Dr. Temple's resignation in 1870, a period of decline set in, followed by one of slow improvement under the rule of the kindly and generous *Dr. T. W. Jex Blake*, H.M. 1874-1887, who eventually became very deaf, and retired to become Dean of Wells. Under his rule the partial rebuilding of the Chapel, and the building of new class-rooms, an Art Museum and Library, a large hall called "New Big School," Racquet and Fives Courts, and a Sanatorium, was carried through, and a large ground for Cricket and Football, "Caldecott Field," was bought, to supplement the School Close. Dr. Jex Blake himself gave the School a covered Swimming Bath. He also started the Modern Side, for boys not taking Greek.

Under the Public Schools Acts of 1868 and 1872 the management of the School was taken from the Trustees, and, with the income from the endowments, put under a new Governing Body of twelve eminent persons, several of whom were distinguished scholars, men of science, or

administrators. This Governing Body was empowered to make rules for the School. The Trustees still continued to deal with the Trust property, and some of them sat also on the Governing Body.

Part of the School funds was used to establish in Rugby a Lower School, called the *Lawrence Sheriffe School*, to provide a more elementary education at a cheap cost for those who preferred it, but with Scholarships tenable in Rugby School.

Meantime it became clear that the tone of Rugby was not all that it should be, under the easy-going rule of Dr. Jex Blake. So, when he resigned, a very different type of Headmaster was chosen.

Dr. Percival. The reign of Saturn was over, and a sterner, more vigorous rule began under the redoubtable John Percival, LL.D., President of Trinity College, Oxford, once an Assistant Master at Rugby, but celebrated specially as Headmaster of Clifton College, 1862-78, which he had raised to a first-class Public School, especially as regards its success in examinations.

He was indeed one of the great Headmasters, and his rule at Rugby, 1887-95, did the School much good, morally, intellectually, and numerically, and brought it once more into the front rank for efficiency of teaching and general reputation.

Born in 1834, the son of a Westmorland farmer, and a pupil of Appleby Grammar School, to which he walked daily a long distance, he had a tall commanding figure, an iron constitution, and great strength of purpose. His capacity for work, shown early by his Double First, and Fellowship of Queen's College, Oxford, seemed to continue even into old age.

Tall, handsome, and dignified, Dr. Percival had such a distant, cold manner that he seemed rather like the Matterhorn after a fresh fall of snow; yet he could be affable to parents, and considerate to his VI Form, and had a real interest in the poor, and in adult education.

He had, alas, a harsh nasal drawl, from his early Northern home, mispronouncing his vowel sounds. Hence his nickname "Parks"="Perks."

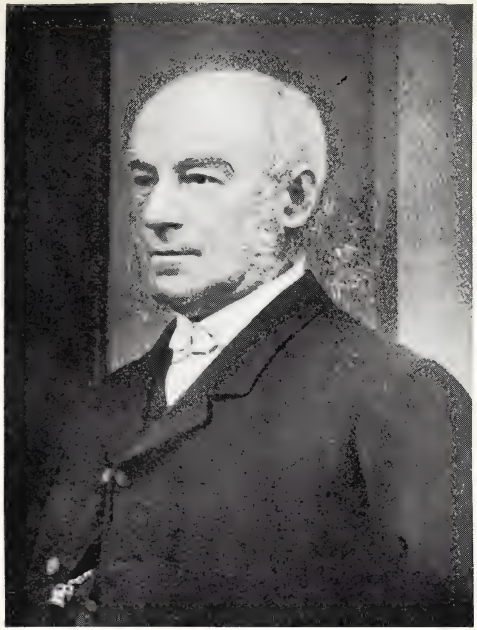


Photo by Fry, Brighton.

REV. P. BOWDEN SMITH, M.A.
Senior House Master.
Entered Rugby, 1844.
A Master there, 1852—1895.

Photo by Speight, Rugby.

REV. JOHN PERCIVAL, M.A., LL.D.
Headmaster, 1887–1895.
Bishop of Hereford, 1895.

Photo by Speight, Rugby.

Mr. E. A. SCOTT, M.A.
Second House Master.
Entered Rugby, 1842.
A Master there, 1859—1895.

BRITISH MUSEUM
NATURAL HISTORY

A Liberal in theory, he seemed an autocrat in practice, lacking elasticity and urbanity in dealing with boys, and perhaps expecting too much from them.

His prompt vigour in removing undesirables was admired: but generally he was more feared than liked. Still, his work for Rugby was splendid, and the School rose to about 600 boys, with a long waiting list, and a fine record of academic successes.

The organization and life at Rugby, its grounds and buildings, and several of its leading personalities, masters and boys, were then described and illustrated by lantern slides under the following main heads:—

(a) Financial.

Fees, per term (three in a year). Boarding, £24; Tuition, say £11; together, say £105 to £120 a year, according to the extras taken.

Grounds, Buildings, etc. Illustrated fully by special slides.

Salaries, Pensions. Sufficient to secure life service of graduates in high honors.

(b) Residential.

Except a few living with relations in the Town, all boys in the School were confined within definite School Bounds, shown on a map, were subject to "Calls-Over," and to "Lock-Up" at hours fixed for the season, and lived in *Masters' Boarding Houses*, some 8 in number; the School House, under the H.M., taking about 80, other Houses usually about 50 boys of all ages.

The House Master was *in loco parentis* to the boys of his House, and responsible for their conduct, feeding, health, and expenditure, though with power to delegate some of his authority to others.

Masters old and new. Two senior House Masters, Rev. P. Bowden Smith, M.A,. and E. A. Scott, M.A., had been boys at Rugby soon after Dr. Arnold's death. Both were kindly and paternal. New masters varied greatly.

Tutors. Able young masters, to assist in teaching or supervising the boys of a certain House.

The Sixth Form. Its authoritative position in School and House. " The Head of the House," i.e., the senior VI Form boy in the House, presiding over the House Sixth, and keeping accounts of House Games, etc. Sixth Powers and Responsibilities, especially for enforcing order, discipline, strict observance of rules, and good conduct, by slight caning, if necessary. Its great influence for good. The good effect of " a Sixth Licking."

The Upper School, below the VI Form, including " The Twenty," Army Class, Upper V, and Lower V Forms. Position and privileges:—Permission to do Evening Preparation in one's private study, and not in Preparation Class. Exemption from fagging, unless in one's first term.

Fags and fagging. Who were fags? New boys, and all others below the Upper School, in so far as needed, sharing duties according to a fair scheme. Varieties of fagging, e.g., tidying the Studies of VI Form, making toast and fetching food for VI Form, carrying hot water, towels, etc., for Football XV after games, etc. Good effects of the system. Making boys useful and tidy. Preventing laziness, conceit, " side " or " swank."

Rags, i.e., unofficial entertainments for boys only, e.g.:—Initiatory concert (informal) by new boys in Hall, arranged by the Sixth, to test singing powers. Farewell concert (still less formal) in Big Dormitory at end of Term. The flying wet sponge as an adverse comment. Pillow-fighting, as evening exercise, and as military training for a future General. Tactics of candle-snatching. Defence by ambush.

Household Staff. The Matron, a kindly, capable Scottish widow (Mrs. Bowditch), who gave first-aid to us and our clothes, and a friendly welcome to her work-room for a chat with " Ma Bow."

The Butler, a sturdy, red-whiskered, inexorable man, who woke us, with a loud bell and voice, at 6.15 a.m., and took away our candle at 10.15 p.m. Two Serving Boys, for boots, knives, serving food, etc.

Meals. 6.45 a.m., Coffee and Ship's Biscuit; 8.30 a.m., Breakfast in Hall with meat or eggs; 1.30 p.m., Dinner of two or three courses, with House Master and family in Hall; 5.15 or 6 p.m., Tea in Hall; 7.30 p.m., Cocoa, Bread and Cheese, etc.

Food. Plain, and on the whole good, except the cheese, which became uneatable. A House Master was expected to make a good profit out of Boarding Fees.

(c) Religious and Moral.

The Arnold tradition continued. But Dr. Percival's dry pulpit manner and harsh delivery had none of Dr. Arnold's winning enthusiasm.

Religious Services. 7 to 7.15 a.m. every morning, usually in Chapel. On Sundays, three Services and three hours of Divinity work, including preparing a chapter of the Greek Testament. The Special Rugby Hymn Book and Tune Book, with a splendid choice of hymns and tunes, were in constant use and much liked.

The Chapel Choir practised regularly and sang lustily and happily, both in Chapel and in School Concerts, under its alert and stimulating Choirmaster, Mr. Basil Johnson, later of Eton. His splendid work, and nice handling of the boys, got fine effects with some of Handel's *Messiah* choruses.

The House Evening Prayers and Hymn, an abiding memory, with our dear old House Master, Rev. P. Bowden Smith, a gentleman and a "sport," reading prayers in Hall.

> "The radiant morn hath passed away,
> And spent too soon her golden store;
> The shadows of departing day
> Creep on once more."

(d) Instructional.

Set books were much better chosen, and many more were read in the time than in Ireland.

Teachers and Taught. Relations were usually quite friendly, and even hospitable, and continued so long after a boy had left Rugby. Some 25 Assistant Masters, besides 2 Music and 2 Art Masters, for about 400 boys.

Assistant Masters, their high qualifications and good prospects at the School. Usually graduates in high honors at Oxford or Cambridge, and often former Fellows of good Colleges.

Teaching Styles. Seldom attractive, though thorough, but without proper illustration.

Long Hours of Labour. From 7 a.m. Chapel till 9.30 p.m. on whole schooldays, with but slight intervals. Three half-holidays a week, and a fourth every third week, had no lessons after 1.15, at least in School. But some two hours were needed for preparation of next morning's work nearly every evening, except Saturday and Sunday.

The Boys, aged 13 to 19, in great variety. Usually sons of prosperous professional or business men, but differing greatly in knowledge, ability, and tastes.

The *Grading* of boys was helped by:—

(1) Division into the Classical and the Modern Side.
(2) The "Set" system, for Modern Languages and for Mathematics, on the Classical Side, e.g., in the Upper School 5 French "Sets" or classes, in which boys were placed solely on their French work and without regard to their general Form rank.
(3) Possible promotion each term, by examination, but usually in January or September.
(4) A Superannuation age for each Form, after reaching which a boy must leave the School, if not promoted.

Specialisation. Not encouraged below the Sixth Form, except in the Army Class, and for Mathematical or Science Scholars.

Discipline. Severe, but smooth-running and inevitable, prevailed almost everywhere. Yet sheep *did* get into the Chemical Laboratory!

Written reports on each boy's conduct and work, from his House, Form, and Set Masters, went to his parents *twice each term*.

Mechanisation. An almost complete loss of leisure and of liberty, for boys under Form VI, was the penalty paid for over-organisation and work at high pressure.

(e) CULTURAL.

Various voluntary activities as instruments of culture, e.g.:—

The Natural History Society, and its active *Architectural Section*, with Meetings and Excursions, led by Rev.

W. H. Payne-Smith, M.A., a keen antiquary, later a Canon of Canterbury.

The Reading Room and *Art Museum* lacked only boys with leisure in which to use them.

Drawing and *Open-air Sketching Classes*, under Mr. T. M. Lindsay, late Head of the Belfast School of Art, a clever and charming teacher, were stimulating and enjoyable.

Shakespeare Recitations (professional), and *Evening Lectures* by some celebrity, were well attended and enjoyed.

Music. School and House Choirs gave each two Concerts a year. Instrumental Chamber Music played to the boys in our House once a week during winter also helped.

My kind Tutor's (Rev. F. B. Westcott) reading of poetry to a few of the older boys on Sunday afternoons was a delight. A son of the learned Bishop of Durham, and himself a former Fellow of Trinity College, Cambridge, he was later Canon Westcott, Head Master of Sherborne.

The Debating Society, meeting fortnightly in Dr. Arnold's beautiful Sixth Form room, with its oriel window, held rather dull debates, under the genial chairmanship of Mr. J. L. Paton, B.A., later H.M. of Manchester Grammar School.

The Workshop, for carpentry and cabinet-making, was most popular and successful under an excellent cabinet-maker, who taught us how to make boxes, picture frames, brackets, etc.

The School Observatory was occasionally visited on clear winter evenings.

(f) Physical.

The usual *School Games* were thoroughly organized and encouraged, and were compulsory for all under VI Form. Junior Masters, often excellent players, took part in them. Our good old House Master never missed watching an Inter-House match in which his boys took part.

Grounds. The Close (17 acres), Caldecott's (8 acres), were ample and excellent.

Football—say 13 matches at once—was the favourite game which all could enjoy.

Cricket was not so successful, but P. F. Warner learnt his cricket at Rugby. As exercise it was useless to a bad player, but was a good soporific in July.

Running—cross-country—especially in Spring Term, was a welcome change from Football.

Brook-jumping, in frosty weather, was a cold and miserable sport.

Voluntary activities gave further scope for our energies. *Organized*, e.g.:—

Gymnastics in a splendid gymnasium, under two instructors, on winter evenings.

The Rifle Corps. "F Company, 2 V.B. Royal Warwickshire Regt." It totalled 142, of whom 138 were boys. Its spiked helmets, red tunics and pipe-clay. Its long evening drills and parades in the Close. Its neglect of musketry practice. Rifles with a kick like a mule. Its Marches Out, with a hired band; Field Days; Camp (one night only, but two dusty days). Its adventures at Aldershot: annihilated on an exposed hill-side, but commended for its march past.

Swimming, in a covered bath.

Unorganized:—

Racquets (a costly game), and *Fives*, had good Courts, but few players, through lack of leisure.

Cycling, owing to the increasing use of the "Safety Bicycle" (which I first rode at Rugby), was getting very popular, but was not encouraged.

Country Walks on Sunday afternoons in the Summer Term, through lovely Warwickshire meadows, left happy memories also.

But these simple pleasures were greatly limited by our compulsory activities, and a few years later were still further restricted by Dr. Percival, who seemed afraid to trust boys beyond the School precincts, a most unfortunate departure from the old traditions and spirit of Rugby.

Farewell to boyhood. In the Summer Term of 1889 I secured admission to King's College, Cambridge, to which University several of my school friends were going; and at the end of term bade a sad farewell to my kind old House Master, and many cheery good-byes to good friends among masters and boys, whom one was sure to meet often again!

So, with a last backward glance at the elms in the Close, and the Old Buildings, two Ulster lads sped forth on an "adventure brave and new"; yet at that glance the gates of school and boyhood closed for ever behind them, and the long, drear, uphill road of manhood lay in front.

R. S. L.

REV. P. BOWDEN SMITH'S HOUSE TENT IN CAMP, 1889.

Rugby School Volunteer Corps—F. Company, 2nd Volunteer Battalion, Royal Warwickshire Regiment.

G.C.L. R.S.L.

Charles Thornton.
VI Form, in Command of Tent
(Sitting).

BRITISH MUSEUM
NATURAL HISTORY

10th January, 1933.

Mr. R. S. Lepper, M.A., President, in the Chair.

Richard H. Hunter, M.D., M.Ch., Ph.D., M.R.I.A.

"THE INFANCY OF MEDICINE."

The Infancy of Medicine, as far as the modern world is concerned, begins with the teaching of Hippocrates, a Greek physician, who lived from 496 to 370 B.C. It is true that systems of medicine existed before this time amongst the Hindus and the Egyptians, but these systems almost completely disappeared from knowledge during years of warfare. They must, however, be considered as traces of them are thought to have reached Europe and influenced, to a small extent, early Greek medicine.

Hindu medicine is of particular interest. It belongs to a culture with which no other can vie in its antiquity; it extends backwards 6,000 years B.C. Little is known of this system of medicine, but it must have been of a high order, if we may judge from the general civilisation of the period. Years before the birth of Christ the Hindus had invented numerical figures, and a decimal system; they had also invented algebra and geometry, and they had applied these sciences to astronomy. They accurately determined the rate of motion of the procession of the Equinoxes; but the culminating point of their inventions was reached when the Hindu philosopher Bhaskara expounded the law of gravity and the principle of differential calculus, thus anticipating Newton by many centuries.

Although the earliest Hindu physicians employed charms and spells, like the medicine man of primitive African tribes to-day, they also employed medicinal herbs in the treatment of disease. It was not, however, until about 3,000 B.C. that medical practice was placed on a scientific basis. This was due to the efforts of two men, Charaka and Susruta. Charaka compiled a work on medicine which contains 120 chapters. It deals, in an astonishingly scientific manner, with diseases of the heart, chest, abdomen, reproductive organs and extremities. The

cause and treatment of disease, as understood at that time, are discussed, and there is an elaborate account of the planning and furnishing of a hospital. Special directions are given in this plan for the construction of a lying-in room, and it is recommended that the bedding, coverings and sheets should be purified by steam fumigation—the method employed in our hospitals to-day.

The other great figure in Hindu medicine is Susruta, who was rather a surgeon than a physician. He is too the great codifyer of Vedic times, and he collected together and systematically arranged the surgical and medical knowledge of his time. In this work he describes and gives the uses of 101 varieties of blunt surgical instruments, and of 20 different kinds of sharp instruments, "which," he states, "should have an edge so fine as to divide the hairs on the skin." He advises that the sick room should be fumigated with the vapours of resinous gums, that incense should be burnt in the operating room, and that afterwards the wound should be sterilised with "wine"—all of which foreshadowed the anti-septic surgery introduced by Lister some 5,000 years later. Susruta used a form of anæsthesia, when operating, which he obtained by the administration of medicinal wines. He states: "Wine should be used before operations to produce insensibility to pain." But he carries us further into the evolution of surgery when he recommends the inhalation of the fumes of Indian hemp, *Cannibus indica*, for the same purpose.

Hindu surgery must have developed to a very high standard, for we learn that a cranial operation was performed on King Bhoja of Dhar in 927 A.D. by two surgeons "who first made the King insensible by a drug called Samolini." They then trephined the skull, removed a growth from the brain, closed the opening, and stitched the wound. They afterwards administered another drug, named Sanjivain, to restore the King to consciousness.

The after result of this operation is not known, but at least it serves to show that there is nothing new under the sun, not even brain surgery.

Hindu medicine includes a system of Eugenics. It forbids a Hindu to marry outside his own cast, and advises always the marrying of a bride of good family. It states: "Even a horse is respected on account of his good genealogy, hence a lady of good genealogy should be taken in marriage."

The Hindu pharmacopoeia contained the drug, Stramonium, which was used in the treatment of asthma, Nux Vomica which was used in cases of dyspepsia, Arsenic for fever, and Mercury for syphilis. Drugs which are to be found in the British pharmacopoeia for the same purposes to-day. The Hindu system also employed fat, bile, bone-marrow, blood, hoof, etc., thus anticipating the therapeutics of to-day, which prescribes the more elegant cod-liver oil, ox-gall, bone-marrow, hæmoglobin preparations, raw beef and calf's foot jelly.

When we add these to the knowledge of surgery and anæsthetics it would seem that we moderns have not made so much headway in the art of healing as we had thought.

War and strife unfortunately scattered all this knowledge, and the nations which advanced at later periods in the world's history had to begin all over again, probably make the same mistakes as the early Hindus, and after many trials and tribulations end by making the same discoveries which the Hindus had made centuries before them.

Egyptian medicine began as a system of magic, the influence of which Egyptian and even all later systems of medicine never completely lost. Disease, according to the Egyptians, is not a disturbance of the normal physiological functions, but it is due to a malign spirit or god who has attacked it. Unless this evil spirit can be expelled before irreparable damage has been done, recovery is beyond hope. The evil spirits, or demons, are said to enter the body by the nostrils, mouth, ears, etc., and once inside the body the vital substance is said to be devoured.

An early Papyrus of about 1,550 B.C. states:—"He who treats a sick person must first of all discover the nature, and if possible the name of the evil spirit in possession, and then seek to expel it by every means in his power. He must be expert in magic, knowing suitable incantations, and skilful in making amulets adapted to the occasion. As opportunity presents itself, he must resort to prayers to the deities, and to ritual. Material remedies may also be applied. The best physicians carefully diagnose between those cases for which magic alone is the best remedy, and those most suitable for treatment within the temples, and those which call for incantations accompanied by drugs."

According to this view, disease is caused by the pernicious influence of an indwelling evil spirit, a spirit which can only be combated by magic, incantations or spells, although at the same time drugs might be used to assist in the treatment, either to relieve symptoms or to abolish pain. Rational therapeutics and magic were interwoven thus closely in the practice of the magician-physician. And it was necessary for him to distinguish between diseases curable by spells and magic alone, from those curable by a combination of spells, magic *and* medicines.

In the early days of Egyptian medicine superstition probably predominated, but as time passed exact observation and therapeutics gained the upper hand, and magic yielded to the advance of exact knowledge.

After the magical period, a definite and quite scientific system of medicine was evolved in Egypt. In a later Medical Papyrus there are described 15 distinct diseases of the abdomen, 11 of the bladder, 10 of the rectum, 29 of the eyes, 6 of the ears, and 18 of the skin. All these diseases were treated according to definite principles. The physicians, according to the Greek Historian Herodotus, were divided into specialists. He states: "Each physician applies himself to one disease and one only. All places abound with physicians, some for the eyes, others for the head, others for the teeth, others for the intestines, and others for internal disorders."

Treatment, however, could only have been of an empirical nature, as a knowledge of the anatomy and physiology of the human body was unknown. The only knowledge the Egyptians possessed of the human body was derived from the simple dissections required for purposes of embalming the dead. The ritual probably was something like the following: A priest, of a low class and known as a cutter, made an incision in the left side of the body, with a knife of Ethiopian stone, and then ran away as fast as he was able, pelted with stones and pursued by the bystanders. The actual embalmers belonged to a higher class of priests and they took charge of the body only after the wound had been made. They removed all the abdominal and thoracic viscera, because they believed these parts to be the seat of evil emotions. The heart and the kidneys were allowed to remain, since they were regarded as the seat of good emotions. Such an examination would give

only the scantiest information as to the form and structure of the body, and the priest-physicians must therefore have been empirical in their methods of treatment.

The following extract from the Eber's Papyrus shows one aspect of this system:—

"When you are examining a person who is constipated, he will complain of a sense of fullness when he takes nourishment. His abdomen is distended, his heart beats feebly, and he walks like a person suffering from inflamation of the rectum. Make your patient lie down at full length and proceed to examine him. If you find that the skin is hot, and the abdomen hard, tell him that his liver is out of order."

"You must prepare a secret vegetable medicine, which the physician has prescribed, and which will relieve his bowels. As soon as this has happened, if you examine him and find the right side of the body hot, while the left is cool, say to him: 'You will recover from the attack, the disorder is wearing itself out."

"If when you next visit your patient, you find that his whole body is cooler, say to him, 'your liver is acting again, and is now cleansed, the medicine has done its work.'"

About this period the Babylonians had evolved an original method in the treatment of disease. They brought their sick out into the public squares, where they might seek council from those who passed that way, and who had been afflicted similarily. For a long time this simple plan sufficed, and it was not until the time of the early Greeks that a change was effected. If a sick person was cured of a disease it was ordained that he should go to the nearest temple and cause to be inscribed on a tablet the symptoms of his disease, and the curative agents which had been beneficial to him. A sick person then had the privilege of going to consult these tablets, and of choosing for his sickness the treatment of which experience had confirmed the value.

Soon, however, special temples were set aside for the purpose of housing the tablets, and a special sect of priests appointed to look after them. These priests had to perform the special duty of examining the tablets and of selecting the one most suitable for any particular disease.

The next step was the formation of a medical code based on the tablets, and the priest-physicians were supposed to be so familiar with the writings on the tablets, that they could prescribe for a sick person without recourse to a search among them. The physicians were compelled by law to follow this code, and if in doing so, they could not save the patient's life, they were not held responsible; but if they departed from the code and the result did not justify this course, they were punished with death.

Payment for medical treatment by the priest-physician was regulated by law, and it was laid down:—

"If a physician heal broken bone, or cure diseased bowels, the patient shall pay the physician five shekels of silver."

"If a physician cause a severe operation wound with a bronze operating knife and cure the patient, he shall have ten shekels of silver."

"If a physician make a severe wound with a bronze operating knife and the patient die, he shall have his hands cut off."

Before, and for a long time after, the memorable Trojan war of about twelve centuries before Christ, the story of medicine rests on uncertain traditions. But about fifty years after the Greek chief had destroyed the kingdom of Priam, we learn of the building of a temple to the honour of the god Aesculapius. This temple was quickly followed by the building of a number of others.

The temples were never very imposing in size, they were solely for the accommodation of the statute of the deity, his altars and his divine guests; all ritual ceremonies were held in the open air.

The priests attached to these temples were called Asclepiads, a word which signifies the son of Aesculapius. They formed a particular cast, and were governed by sacred laws.

Sick persons came from all parts of the world on pilgrimages to these temples in order to gain communication with the deity, and be cured of their disease. The priest-physicians would not allow the patient to attempt communication with the deity until the pilgrim was first purified by

abstinence, fasting, prayers, and sacrifices. The purification accomplished he was conducted to the inside of the temple, where he was obliged to remain for one or more nights before the god would communicate with him. The ritual on such an occasion was as follows:—

The patient was dressed in white and assigned a pallet in the temple, and, when darkness had fallen and the lamps extinguished, left for the night. In the early hours of the morning a priest, dressed like a god, would return and move among the patients. He would touch one, speak to another, pour an ointment on a third. In the dim light of early morning, when the patient was half-way between sleeping and waking, such a visitation was easily interpreted as a divine one. The dreams and visions were interpreted on the following morning by the priests, who gave appropriate directions for the treatment to be carried out. Some patients claimed to have been cured during the visitation of the god, and many and wonderful are the "cures" recorded. Here are two examples:—

"A man with paralysed fingers came to the god as a suppliant, but he was incredulous and mocked at the inscriptions. He slept and saw a vision, dreaming that as he was playing dice under the temple, the god stepped on his fingers and stretched them out, after that he could bend and straighten them, and the divinity asked him if he were still incredulous? He replied 'No,' whereupon the deity said that if he should trust in the future, he would be as other believers. At daybreak he awoke cured."

This is the cure of a definitely *hysterical paralysis*, similar to the so-called modern miracles of the popular press.

Another example is the story of Kleo. "Kleo, who had been pregnant five years, slept in the temple where she was visited by the god in her dreams; immediately after leaving the sacred precinct she was delivered of a boy, who of his own accord washed himself in the fountain, and walked about with his mother."

The patients who recovered returned to their homes blessing the divine author of their recovery; but those who did not recover believed that their offerings to the god had been insufficient and so redoubled their zeal and liberality, so that bad as well as good results added to the glory of the god—and to the profit of the priest-physicians.

The priests of Aesculapius formed a special cast and they transmitted from one another their medical knowledge as a family heritage.

Laymen were not allowed in the earliest times to participate in the sacred rites, but at a later period this severe secrecy was relaxed, and the secrets were revealed to strangers, provided that they were able to fulfil the tests of initiation. It has been assumed that some sort of medical instruction was given in each temple, and it is probable that the instruction was based on a study of the votive tablets. Each of these tablets showed the name of the patient, the nature of the disease, and the manner of the cure. Here are two examples:—

"Lucius was attacked with a pleurisy and everyone despaired of his life. The god ordered that the ashes of the altar be mingled with wine and applied to his side. He was saved, and gave thanks to the god before the people."

"Julian vomited blood and appeared beyond recovery. The god ordained that he take the pine seeds of the altar, mingled with honey, and eat them for three days. He did so, and was saved, and gave thanks to the god and went away."

Narratives of this kind, written in such a style, were well calculated to fortify the piety of the faithful, but they could have had no influence on the advancement of science. Of what value is the record: "Julian vomited blood and appeared beyond recovery?" What physician would dare diagnose, form a prognosis, or direct a line of treatment on so vague a clinical picture?

It is presumed that the Asclepiads wrote down in secret the history of each case and the means employed in treating it, but we are quite ignorant of the stages through which science passed before it attained to that stage of perfection exhibited in what are known as the Hippocratic works, written about 400 B.C. But we may assume that the precision of observation, and the clearness of expression in these writings could not have been evolved suddenly, and that the authors must have been, for a long time, in the habit of closely observing and clearly describing diseases.

When a great number of votive tablets had been collected, the embarrassment of such a mass of material, arranged without any order, must have been acute. To find any particular tablet was almost an impossibility. It became more and more necessary to arrange the tablets in

such an order as to facilitate a reference to them. We are ignorant of the first classification employed, but we know that at an early date diseases were arranged in groups according to the part affected, descending from the head to the foot. This classification, which is found in the Hippocratic works, was used with minor variations down to an epoch not far from our own.

The temples of Aesculapius were simply dispensaries where advice was given and remedies prescribed, and at which certain young men were trained in the practice of medicine. The Asclepiads had preserved the tradition of the Egyptians to allow the transmission of their doctrines to the members of their own cast only, or to such strangers who satisfactorily fulfilled the initiatory tests. A rival school of physicians then arose, which introduced the custom of visiting patients in their own homes, as physicians do to-day. This rival school, too, made public their methods of treatment, and openly discussed them. They soon began to acquire the confidence of the people, and the priests of Aesculapius were constrained to bring to the light of discussion the principles and rules of their own medical practice, and to visit patients in their homes.

The physiological and pathological theories of this period are based on the doctrine of the four elementary qualities of heat, cold, dryness and moisture.

The theory of this doctrine is that the element which constitutes the largest proportion of the body determines its permanent form, thus the terrestrial element predominates in solids, aqueous in liquids, aerial in vapours, or gas, igneous in the ether.

The assumption of the four elementary forms was based on certain observable natural phenomena which suggested the idea, and gave it the appearance of reality. Water can pass from a liquid to a solid (ice), or to a gaseous state (steam), without changing its nature; in the burning of wood, especially when it is green, water oozes from its surface, smoke, which the ancients regarded as crude air, is given off, a deposit of ashes, the terrestrial element, is left as a residue; and lastly, light and heat are given off to be dissipated in the ethereal regions. We can see, then, that the theory of the four elements could not have been so ridiculous to the eyes of those ignorant of the wonders of modern chemistry.

Hippocrates, however, would not accept this simple element theory, and evolved a new theory in its place. He taught that man's body was formed of four elements: blood, phelgm, yellow bile and black bile, and that the condition of these would determine the state of health. The body, he said, was healthy when each of the fluids was in due proportion one to the other, as to quantity and character, and especially when they were well mixed; it was diseased when any one of them was in excess over the others, or lacked its due proportion to the rest, or was evacuated without being properly mixed, because when it was thus evacuated, not only the region involved must be affected, but still more the organ through which it passed off must have become surcharged and suffer painful struggles. These irregularities of admixture were caused by changes in the temperature and dampness of the air, and in the season of the year. In this way Hippocrates combined his new theory with the earlier doctrine of the four qualities of heat, cold, dryness and moisture. An excess of either of these four qualities would cause some humour of the body to be badly concocted, or to be too abundant, so that it was extravasated from its natural reservoirs into parts not habituated to its presence.

It must be noted, however, that although Hippocrates invented the Humeral theory, he was not a mere charlatan. He is rather the great central figure of Greek medicine, and to him medicine owes the art of clinical inspection and observation, as practised since his time. He founded what is known as "the bedside manner" method. That is, the use of the mind and senses as diagnostic instruments. The clinical pictures which he has left of phthisis, puerperal septicaemia, epilepsy, quotidian, tertian and quartan varieties of remittent fever, with a few minor changes, might take their place in any modern text-book of medicine.

"In acute diseases," he says, "the physician must make the following observations: First let him examine the countenance of the patient, and see if the physiognomy is similar to that of men in health, and above all, if it is like itself. Such an appearance will be most favourable. If, however, the features have attained the last degree of alteration, the nose become pointed, the eyes sunken, the temples flattened, the ears cold and contracted, their lobes shrunken, the skin of the forehead dry, dense and parched,

the skin of the entire face of a yellow, dark-livid or leaden hue, the outlook is serious. If from the beginning of a disease the patient's countenance presents these traits, or if other signs do not furnish sufficient explanation, the patient should be asked if he has lost much rest? Or has a severe diarrhoea? Or is suffering from hunger? An affirmative response on either of these points would cause the peril to be regarded as less imminent; such a morbid condition, resulting from any of these causes above mentioned, may be arrested in the course of 24 hours; but if the patient does not communicate any of these causes, or if the affliction does not cease in the interval above mentioned, it may be predicted that death is not far distant."

The physician here forms his own judgment, makes his prognosis *without examining the abdomen.* To-day this would be the first thing a physician would consider, if faced with such a clinical picture. But in the time of Hippocrates, and for a long time after him, visceral disease was not known to medicine. Such ignorance can be explained by the fact that post-mortem examinations were not made. The physician was thus forced to make his observations on superficial phenomena, and deduce his prognosis from them alone.

At the time of Hippocrates it was the custom of physicians to announce the probable result of the disease at the first or second visit to his patient. This custom still prevails in China, and it also prevails in Turkey. It indicates the infancy of medicine, and can only exist among ignorant and superstitious people. It supposes that the physician is consulted as an oracle — as a man endowed with super-human powers, and not as a simple mortal who, by reasons of study and observation, has attained a fixed impression in his mind of the natural progress of a given number of diseases, and of certain group characteristics, by means of which in some cases he can announce their probable issue.

The doctrine of the four humours was taught in antiquity almost exclusively until the famous medical school arose around the great library at Alexandria. This library was founded by Ptolemy Soter, King of Egypt, about 300 B.C. It is one of the great landmarks in the history of early medicine, because it was there for the first time that

dissection of the human body was performed and a true knowledge of the structure of the human body obtained, where an attempt was made to study the functions of the different parts of the body, and an effort made to develop a pathology on the basis of functional disturbance. Disease was then treated in such a manner as was thought would bring back the organs of the body to their normal functions.

The great guiding spirits of the school at Alexandria were Herophilus, who died about 290 B.C., and Erasistratus, who died about 270 B.C. These two men demonstrated the absurity of the theory of the four humours, and showed that the human body was formed of definite anatomical structures, such as nerves, muscles, bones, tendons, etc. They showed also, for the first time, that the nerves originated in the brain, and that they could be divided into two groups, one group concerned with sensation, and one group with motion. They recognised that muscles were needed for voluntary movements, and classified them into flexors and extensors. They also distinguished between arteries and veins, and showed the value of the pulse as an indication of the state of the heart.

A charge has been made against Herophilus and Erasistratus that they dissected living men in order that they might gain a clear knowledge of "all the internal parts of man, for death itself might change them from their state when alive." It is said by this means that they hoped to discover "the secret springs of life." According to Celsus, Herophilus and Erasistratus "procured criminals out of prison, by royal permission, and dissecting them alive, contemplated while they were still breathing, the parts which nature had concealed." It is doubtful if this charge against Herophilus and Erasistratus was ever proved, or that it was more than the speculations of an imaginative people, whose horror had been roused by what was to them a disgusting innovation, the practice of dissecting the dead.

The fame of the school of Alexandria rose higher and higher, the constant opportunity of studying human bodies by dissection after death gave its teachers a much more solid foundation for their work than any sect of priest-physicians up to their time. And, in passing, it is instructive to notice that when at a later period the practice of dissecting the human body ceased, the practice of medicine

fell back to a similar magic and superstition to that of the early Egyptians.

The next great light in the evolution of medical practice is that of Cladius Galen, who lived A.D. 130-200. Galen received his early training in Smyrna, and came to complete his education at Alexandria, where dissection of the human body had long since ceased, but which still existed as a medical centre by virtue of the fame of the dead Herophilus and Erasistratus.

The pathology of Galen reverted back to the humours of Hippocrates: Blood, phlegm, yellow bile and black bile, to which he added three kinds of spirits: Vital, natural and animal. "The first of these," he says, "is the natural, whose seat is in the liver, where it presides over the generation, growth and nutrition of the animal; the next is the vital, which is seated in the heart, whence it dispenses warmth and life to every part of the body, through the medium of the arteries; the third and noblest is the animal faculty — which in conjunction with the governing or reasoning faculty resides in the brain, where it presides over all the rest, and communicates the power of motion and sensation to every part of the body, through the nerves."

Galen had one great fault as a teacher. He allowed himself to be carried away by the theological teachings of his day. He tried to prove that everything in nature showed an element of design and goodness of the Creator, that everything was formed by an intelligent Being on an intelligent plan, and that all the organs of the body resulted from that plan.

The work of Galen was the recognised training for physicians from his time right through the period of the great Roman Empire. His theological attitude, although marring his physiological and pathological speculations, caused his teaching to live through the Dark Ages that followed the overthrow of the Roman Empire in A.D. 476.

Darkness, ignorance and intolerance swept over Europe; Greek and Roman culture was carried into the east: to Syria, to Persia and Arabia. The Arabians were an active energetic people, possessed of a copious and expressive language, and although they had made no progress in science when they over-ran the western world, they had cultivated poetry and fiction with considerable

success. The Arabian scholars, therefore, were in a position to appreciate the Greek writings, and it is not surprising to learn that after their conquests were over, they turned their attention to Greek literature. There they found ready to hand the knowledge essential for them if their ambition to become a great nation was to be realised. They imbibed Galen with avidity; they systematised his writings, wrote commentaries around them, and produced a multitude of spurious works.

Little original medical thought is attributed to these people until the time of Rhazes, a Persian by birth, and who flourished towards the end of the 9th century of the present era. Rhazes wrote on philosophy, history and chemistry, as well as on medicine, but the greater part of his works are lost. Two treatises on medicine, however, exist. One of these apparently is intended for popular instruction, as it begins with recommendations to the public in the choice of a physician. It reads:—

" Study carefully the antecedents of the man to whose care you propose confiding all you have most dear in the world; that is to say your health, your life, and the health and lives of your wife and children. If the man is dissipating his time in frivolous pleasures; if he cultivates with too much zeal the arts that are foreign to his profession, such as music and poetry; still more if he is addicted to wine and debauchery, refrain from committing into such hands a trust so precious."

The great medical work of Rhazes is a collection of extracts, which he compiled from all the known Greek authors. This compilation was for many years the standard work on medicine, and Arabian writers of later periods simply recast the material here gathered together, and published it as their own. These writings are merely translations made by Rhazes from the Greek, and the inexactitudes and primary errors of the original Greek were amplified first by Rhazes and then by the Arabian writers who followed him. But it spite of these inaccuracies we owe to Arabian medicine a deep sense of gratitude, for we owe to it the perservation of some fragments of the Greek authors which would not in any other form have come down to us.

Following the downfall of the Roman Empire and the burning of the great library at Alexandria in the 7th century,

there followed a period of darkness in Europe, when early culture, science and medicine were cast into oblivion and to a large extent forgotten. Medicine was confined to the activities of the monks and priests, who rushed into medical practice without the slightest training, seeing as they did, that it gave them a double power over the ignorant people of the time, and enabled them to super-add the authority of the physician to the terrors of the Church. "When the violence of the complaint," writes Friend, the historian, "transcended the narrow limits of their skill, or the novelty of its symptoms baffled their powers of discrimination, the deficiency of their knowledge was disguised beneath the veil of mystery, and the power of faith called in to supply the ineffciency of prescription."

The actions of the monks at last became such a scandal, that in 1123 the first Lateran Council, under Pope Calistrus the Second, made an order forbidding the regular clergy from attendance at the bedside, except as ministers of religion. This prohibition was found inadequate to check the growing evil, and a second order was issued by the Council of Rheims in 1131, and a third order was promulgated in 1339. This last order threatened with the most severe penalties those monks who applied the practice of medicine while "neglecting the sacred objects of their own profession, and holding out the delusive hope of health in exchange for ungodly lucre."

The scandal continued, and no attention was paid to these orders. A papal Bull was then made which permitted physicians to marry, and then only was medicine divorced from her pernicious union with theology, and a final period placed on the shameful impostures which prevailed.

It was during the thickest darkness of this period that the School of Salernum gradually emerged. It was founded by a Monastery of Benedictines, the monks of which had practised medicine as faithfully as their inadequate knowledge permitted them.

A refugee from Carthage, named Constantine the African, who had lived for many years in Bagdad, and who was familiar with the Arabian and Greek systems of medicine, entered this monastery about the year 1060. He introduced these systems of medicine to his fellow monks, and there was presently formed a centre of medical thought, built on the Hippocratic and Galenical teachings. Salernum

soon became one of the greatest seats of medical learning in the middle ages. Under the patronage of the ruling princes, the school of Salernum flourished more and more, and soon it became famous "as well for the learning of its professors, as for the number of its scholars."

But, as decadence is the inevitable fate of everything on earth, and as revolutions take place in the Arts and Sciences no less than in States and Empires, so also the glory of the School of Salernum was doomed to decay. It already exhibited a tarnished splendour at the commencement of the 14th century when Petrach said of it:

" Report speaks of Salerno as having been a fountain of medical knowledge, but there is nothing that does not become dried up with age."

It was about this time that Greek culture and science began to drift back into Europe. The speculations of Galen, fitting so well with the theological attitude of the Middle Ages were acceptable to the Church, and just as under the guidance of the Church spiritual truth was confined to the limits of the revealed word, so anatomical and medical truths were said to be confined to the texts of Galen.

The anatomy of man was the subject in which the first attempt was made to break away from these infallible teachings, and for the first time after 1,500 years Mondino in 1315 began once more to dissect human bodies. But the Church taught that dissection was desecration against the body, and he and his pupils were obliged to discontinue the practice.

But another influence was at work. Roger Bacon in the 13th century introduced the science of chemistry or alchemy into Europe from Arabia. And although this science at first was confined to a search after the Elixir of Life, which was to confer perennial youth and unfailing vigour upon man, and in the search for the "philosopher's stone" which was to convert all the baser metals into gold, great advantages to the science of medicine resulted.

Another worker in this field was Petrus de Apona, a physician born in 1253, whose reputation was so great that he is said to have received 50 crowns for each visit he paid within the walls of the city. But Petrus, unfortunately for himself, pretended an acquaintance with magic, and to be able, by its aid, to foretell the termination of all diseases.

The result of these magical pretences earned for Petrus a visitation from the Inquisition, and in 1319 death rescued him from its tender mercies. Petrus de Apona is introduced here to show that even in the 14th century the union of magic and medicine was still a strong one.

The medical men of this period all dabbled in magic, and used it to a greater or less degree to augment their medical knowledge. Secret remedies were constantly used, and John of Gaddesden, Court Physician to Edward II, used a remedy which he called "the secret of secrets" by means of which he claimed to produce miracles. In his book Gaddesden informs us that the Surgeon Barbers gave him a large price for a prescription into which tree frogs entered. He published a work entitled " Rosa Anglica," and few works of this period give us a better idea of the nature of medical treatment and prescriptions in general use amongst physicians of his day, and their charms and incantations.

It is clear from this account that no real advance was being made in medical science. Magic and superstition dominated the medical practices. They had no knowledge of the structure of the human body, and were completely ignorant of the normal functions of the different organs.

At last a school of thinking men arose in Italy who saw that no advance in the treatment of disease was possible without such a knowledge. After a great struggle the prejudice of Church and people was overcome, and laws were passed which enabled certain physicians to study, by dissection, the structure of the human body. The direct result of these studies was the discovery of the circulation of the blood, from heart to arteries, to the tissues of the body and thence by the veins back to the heart. This discovery was made by William Harvey in 1603, and it showed also the method whereby certain poisonous substances are carried by the blood to the lungs where they are exhaled, and how other poisonous substances are carried by the blood to the kidneys and shed in the form of urine. These facts, now known to every junior student of medicine, are the basis of the modern methods of treatment of disease, where heart, lungs, or kidneys are no longer doing their work. The rationale of treatment is to bring these organs back to such a state that they will be enabled once more to perform these necessary functions.

As knowledge of the structure of the human body increased, and the functions of the different organs of the body better understood, so the knowledge of the causation of disease and its treatment advanced with equal strides. In the forefront of physicians in this movement stood Thos. Sydenham, the so-called British Hippocrates, because of his many critical aphorisms. In the preface to the first edition of his book " The Method of Curing Fevers," he writes: " Whoever takes up medicine should seriously consider the following points: Firstly, that he must one day render to the Supreme Judge an account of the lives of those sick men who have been entrusted to his care."

" Secondly, that such skill and science as by the blessing of God he has attained, are to be specially directed towards the honour of his Maker, and the welfare of his fellow creatures, since it is a base thing for the great gifts of Heaven to become the service of avarice or ambition."

" Thirdly, he must remember that it is no mean ignoble animal that he deals with, for it was for the sake of mankind that God's only begotten Son became man, and thereby ennobled the nature that He took upon Him."

" Lastly, he must remember that he himself hath no exception from the common lot, but that he is bound by the same laws of mortality, and liable to the same ailments and afflictions with his fellow creatures. For these, and like reasons, let him strive to render aid to the distressed with the greater care, with the kindlier spirit, and with the stronger fellow-feeling."

It was men with such noble thoughts as these, that finally overthrew the last remnants of charlatanism and quackery from the practice of medicine. Their name is legion. But one of the most outstanding figures is that of Edward Jenner, who introduced the first principles of Preventive Medicine in 1796, when he induced the British people to accept the use of vaccination against Smallpox. The great revolution in the practice of medicine — the giving of a mild form of disease, in order to prevent a virulent and often fatal disease — can scarcely be appreciated in our time. But some testimonies from the past help us to understand the great influence for good which it carried in its practice. The Rev. Dr. Booker, of Dudley, which at that time contained 14,000 inhabitants, testifies to the striking effects of vaccination as follows:—

" I have previous to the knowledge of vaccine innoculation frequently buried, day after day, several (and once as many as eight) victims of smallpox. But since the parish has been blessed with this invaluable boon of Divine Providence only two victims have fallen a prey to the ravaging disorder of smallpox. In the surrounding villages, like an insatiable Moloch, it has been devouring vast numbers, where obstinacy and prejudice have precluded the Jennerian protective blessing, and not a few of the infected victims have been brought for interment in our cemeteries; yet though thousands have fallen beside us, the fatal pestilence has not hitherto again come nigh our dwellings. The spirit of Jenner hath stood between the dead and the living, and the plague has been stamped."

The most extraordinary attacks were made upon vaccination and its promoters. The most virulent denunciations of its supposed anti-religious tendencies, as interfering with the Divine Will. Opposing physicians detected resemblances of ox-faces produced in children, as they alleged, by vaccination. A lady complained that since her daughter was vaccinated she "coughed like a cow," and had grown hairs all over her body; and in one country district it was stated that vaccination had been discontinued because those who had been vaccinated all "bellowed like bulls."

But truth prevailed. The value of Jenner's discovery was proved beyond all doubt, and when Jenner was asked to leave his country practice and settle in London, where he was guaranteed an income of £10,000 a year, he refused, saying:

" Shall I, when even in the morning of my days sought the lowly and sequestered paths of life — the valley, and not the mountain, shall I, now my evening is fast approaching, hold myself up as an object for fortune and for fame? Admitting it as a certainty that I shall obtain both, what stock should I add to my little fund of happiness? My fortune, with what flows in from my profession, is sufficient to gratify my wishes, indeed, so limited is my ambition, and that of my nearest connections, that were I precluded from future practice, I should be enabled to obtain all I want. And as for fame, what is it? A gilded butt, for ever pierced with the arrows of malignancy."

Jenner was, indeed, a true follower of Sydenham.

Many other great figures arose in the profession of medicine, each adding his contribution to the advancement of medicine, and to the alleviation of suffering and pain.

Lister, by his application to surgery of the discoveries of Pasteur made possible the modern era of aseptic surgery. Simpson by his discovery of chloroform as an anaesthetic, enabled great surgical operations to be performed while the patient lies unconscious, and which otherwise could not be performed.

But another less known change has come over the practice of medicine in the treatment of disease of the mind. From time immemorial, restraint and severity were considered absolutely necessary in the treatment, or rather management, of insane persons. Unfortunate lunatics were placed in chains, manacles and stocks, and as late as 1770 were exhibited to visitors in England as an entertainment at a charge of twopence, a charge at one time reduced to one penny per person.

The medical profession had been accustomed to neglect mental disease, and indeed students did not receive any instruction in it, lunatics were looked upon as " persons possessed with devils," a last relic of the demoniacal theory of disease. Treatment consisted in attempts to scare whatever wits the poor lunatics possessed completely out of them, in order to subdue the supposed devils within them to the will of their keepers. In some continental asylums, patients were terrified by the gradual ascent of water in a well, in which they were chained. A revolving chair was invented to which the unhappy victim could be strapped, and which could be caused to whirl around at the rate of 100 revolutions per minute. This was said to quieten the most unmanagable lunatic, and to cause him "to take a natural interest in the affairs of life." Damp dark cells, infested with rats, contained dirt-covered human beings, whose only comfort was a little straw, chained and brutally ill-treated.

Such was the treatment of lunatics when John Connolly, an Englishman of Irish descent, published in 1830 his work entitled "An Inquiry Concerning the Indications of Insanity, with Suggestions for the better Protection and Care of the Insane." This book was prompted partly by his desire to help those unfortunate people, and partly as a protest against the Senate of the University of

London which prohibited him from giving clinical instruction in a lunatic asylum, to students, as professor of Medicine within the University of London.

This work gained Dr. Connolly world-wide attention, and as a result of an agitation he was appointed Resident Physician to the Middlesex County Asylum at Hanwell in 1839. Here he began the series of reforms which revolutionised the treatment of lunatics in every country in the world. In his first report he wrote:

"No form of straight-waistcoat, no handcuffs, no leg-locks, nor any contrivance confining the trunk or limbs, or any of the muscles is now in use. The coercion chairs have been removed from the wards, and have, in fact, been cut up for use in the carpenter's shop. The removal of restraint tended directly to promote the recovery of the insane patients by taking away the sense of degradation occasioned by restraint, and by bringing them within the sphere of medical remedial agents, and of cheerful influences."

In this way began the change of attitude of the physician to his insane patients. Presently the systematic study of mental disease was begun, and an attempt was made to place its study on a similar basis to that of physical disease."

One of the greatest names associated with this movement is that of Henry Maudsley, whose name is perpetuated in the name of an Asylum for the insane near London—Maudsley Hospital. Dr. Maudsley published in 1867 an important work "The Physiology and Pathology of the Mind," a book which deals with mental phenomena from a physiological, rather than from a metaphysical point of view. It ran into several editions, and as a direct result of its teachings the law, not only in England but in several European countries, regarding the insane and its relation to crime was actually altered, so that criminals who suffered from certain forms of mental disease were not held to be criminally responsible for their actions.

If medicine in the 19th century had nothing to show but these two great reforms in the outlook of medicine to insanity it would shine as one of the most brilliant, at least from a humanitarian point of view, in all the long story of its history.

24th January, 1933.

Mr. R. S. Lepper, M.A., President, in the Chair.

S. Simms, B.Sc., M.D., D.P.H., M.R.C.P.

"BRIEF SKETCHES OF SOME FORTY AUTHORS OF BELFAST BIRTH."

Slides.

I have taken for my subject to-night "Brief Sketches of Some Forty Authors of Belfast Birth," and by this title I intend to bring to your notice the often forgotten fact that this city has been the birthplace of many distinguished in letters. The industrial and commercial supremacy of the Northern Metropolis is well known, and the Sciences have not been neglected, but have been cultivated here with considerable success. It is frequently asserted, however, that the "Humanities" are somewhat different, and do not receive their proper place in educational life. However that may be, there is no doubt at all that the city has been the birthplace of many distinguished for literary achievements, some, indeed, of world wide reputation. It is generally known that in the foundation stone of this building there are four verses from the Book of Job written in fifteen different languages. These were placed there by the founders of this Society to show that not only had they the interests of science but also of literature at heart. The rooms of this building have been used by the Literary Society of Belfast, who have contributed much to the intellectual life of the town, and many members of this Society have read papers on such subjects as Biography and Literature. The plan I have adopted is to consider a few noteworthy points about each author, taking as a common starting point the year of their birth. The first in point of time is Charles Hamilton, born in High Street in 1752, he went to India as a Cadet in 1776 and became a distinguished Oriental Scholar patronised by Warren Hastings and Sir William Jones, one of the first members of the Asiatic Society of Calcutta. In 1786 he wrote an account of the Rohilla Afghans. In 1791 the

Directors of the East India Company engaged him to edit the Hedaya, a commentary on Mussulman law, 4 Vols. Died March 14th, 1792, buried in Bunhill Fields, London. A tablet to his memory is in the vestibule of the first Presbyterian Church, Rosemary Street.

On 16th October, 1754, Henry Joy was born, a well-known name in this city. He was the grandson of Francis Joy, the founder of the "Belfast News-Letter," and he himself became proprietor of the paper in 1789. He wrote many articles on the early drama of the town, and he published in 1794 Belfast Politics (in conjunction with Rev. William Bruce), and Historical Collections relative to the town of Belfast in 1817. He was the only person according to Benn, "who was really acquainted with the history of Old Belfast." All his works were published anonymously. He was the author of a " History of Ireland," Belfast, 1815, a fact which has not yet been noticed by any of his biographers. He died in Donegall Square North on April 15th, 1835.

In the same year, on May 23rd, Dr. William Drennan was born, poet patriot and author. He obtained a degree in Medicine at Edinburgh in 1778. In 1791 he settled in Dublin, and played a prominent part in the origin of the United Irishmen. He wrote many of their stirring addresses, and was tried for sedition in 1794 but acquitted. After this he took no prominent part in subsequent events. In 1807 he returned to Belfast. He was a prominent worker in the founding of the Academical Institution. In conjunction with John Hancock he commenced the "Belfast Magazine." In 1815 he published " Fugitive Pieces," a collection of poems. He was the first to use the epithet "Emerald Isle," and in 1817 he published a translation of the "Electra" of Sophocles. He wrote many political pamphlets which are only known to scholars, but the famous lyrics "When Erin First Rose" and " Wake of William Orr" are destined to keep his name in remembrance. He died on February 5th, 1820.

In 1756 Elizabeth Hamilton was born in High St. A sister of Charles Hamilton, she was taken to Scotland when quite young, and lived there for many years. She published some eight volumes, and was noted for her ideas on education which were in advance of the times. Her novel, " The Cottagers of Glenburnie," has been often

reprinted. In 1804 she received a Civil List pension. She was praised by Maria Edgeworth and Jeffrey in the "Edinburgh Review." She died in Harrowgate in 1816. Her memoirs were written by Miss Benger, 2 vols, 1818. Her poem, " My Ain Fireside," has appeared in numerous versions.

1778 Dr. Samuel Bryson, the Irish scribe and scholar, was born. The son of the Rev. James Bryson, the minister of the Second Presbyterian Church. He became an assistant surgeon in the army, later returning to Belfast where he was on the staff of the Old Royal Hospital in Frederick Street. In 1805 he collected and wrote in Irish "Remains of the Irish Bards," and he wrote several other manuscripts in the Irish language, now preserved in the Belfast Public Library. It seems to me that he was the *first Belfast citizen* to actively encourage the study of the Irish Language and Irish Literature, and he shares with Dr. James M'Donnell (1762-1845) and Robert Macadam (1808-1895) the honour of preserving in this city the language and literature of his native land, and for this reason I have included his work amongst Belfast authors.

Sir Henry Pottinger was born at Mountpottinger in 1789, his family having a long and honourable association with the city, where an ancestor was Sovereign (1686-90). In 1804 he obtained a military appointment in India, where he became an adept in the native languages. " In 1810 he volunteered with Captain Christie for the difficult task of exploring the countries between the Indus and Persia. They travelled disguised as Mohammedan merchants — an incognito that it required all their tact and linguistic abilities to maintain. After treading districts which had not been visited by Europeans since the time of Alexander the Great they returned to Bombay in February, 1811." He published his experiences in "Travels in Beloochistan and Scinde," 1816. He served in the Mahratta War, and on his return to England in 1840 was made a baronet. He was sent as an ambassador to China and concluded a treaty in 1842 which threw open certain ports to commerce. Later Governor of Madras, he died at Malta on March 18th, 1856, on his way home. A famous administrator and traveller, and an able and upright public officer. There is a monument to his memory in St. George's Church, Belfast, erected by his brother. Two Ulstermen have had the

honour of conducting treaties with the Chinese Empire, and of enlarging our knowledge of that ancient civilisation—Sir Henry Pottinger and Lord Macartney who, although born in Lissanure, was of Belfast origin.

In 1794 the future Sir Alexander M'Donnell was born. The son of Dr. James M'Donnell, the founder of the Belfast School of Medicine. A brilliant son of a brilliant father, he was the seventh in descent from the famous Alastair M'Coll M'Donnell, the Coll-Ciotog or Colkitto as he was called by Milton in one of his sonnets. Educated at Westminster and Oxford he displayed remarkable abilities, and was called to the English Bar at the age of 30 years. He broke down while pleading a case before a Committee of the House of Lords, and his sensitive temperament recoiling, he immediately renounced the Bar and returned to Ireland. In 1839 he was appointed a Resident Commissioner of the Board of Education, of which he became the presiding and animating genius. For a period of 32 years he shaped the destinies of the Irish people by his educational policy, and is without doubt the greatest individual who was ever associated with the Educational Board. In 1846 he was made a Privy Councillor, and in 1872 a Baronet. He died on January 21st, 1875, and was interred at Kilsharran, near Drogheda. His writings on Education are now forgotten, but a fine statue by Farrell is in the Marlborough Street Schools, Dublin, to remind us of his worth and services.

In 1799 there was born in North Street Edmund Getty, the youngest and only surviving son of Robert Getty. He was educated at the Belfast Academy and the Academical Institution. Afterwards entering business with his father, but finding it monotonous, he entered the service of the Ballast Board (now the Harbour Commissioners). Being a man of exceptional industry he soon became the leading personage on the Board, and inaugurated many improvements, constructing a Park and a Crystal Palace on the Queen's Island, now occupied by Messrs. Harland & Wolff. He was a Vice-President of this Society for over ten years (1824-1834) and later from (1842-1850). An antiquarian, a linguist, and historical writer. In 1841 he published a novel in three volumes called " The Last King of Ulster," in 1850 " Notices of Chinese Seals Found in Ireland," in 1852 " History of Harbours of the United Kingdom," "Belfast," and in 1853 " The History and Antiquities of Tory Island,"

He also contributed articles on Round Towers and the Ford of Belfast to *U.J.A.* An outstanding citizen in many directions, he was one who has moulded the fortunes and laid the foundations of the city's present industrial achievement. Tall, with a commanding presence, and thoughtful expression. He died suddenly in December, 1857.

A name with which we are all familiar, a foundation member of this Society, Robert Patterson, F.R.S., who was born on Easter Sunday, April 18th, 1802. Educated at the Belfast Academy and the Academical Institution, he was prominently associated with the movement for teaching Natural History in our Public Schools. A scientist of no mean repute, his literary activities are now almost forgotten. In 1838 he published "The Insects Mentioned in Shakespeare's Plays." A poet of no mean abilities, his poems are found in several anthologies. In a little volume, "Flowers of all Hue," London 1835, there are eight from his pen, they are also found in "Selections from the British Poets," 1849, published by the Commissioners of National Education. After his death these and numerous others were collected in a volume entitled "Verses by Robert and Mary Patterson," Belfast 1886. It was printed for private circulation only. He died at his home, 6 College Square North, on February 14th, 1872. His children and grand-children have made their mark in literature, in art, and in science. There is a memorial tablet to his memory in the First Presbyterian Church.

The year 1804 should be remembered as the year of birth of two of the most distinguished of our townsmen. Sir James Emerson Tennent and Sir Joseph Napier. The former was born in North St. on April 7th, the son of Wm. Emerson and Sarah Arbuthnot. He was educated at the Belfast Academy, and he entered Trinity College, Dublin, in 1821, he left, however, before obtaining a degree, with a townsman to assist Byron in the struggle for Greek independence, serving as an officer of artillery. On returning home he published several volumes on Greece. He wrote for many periodicals of the time, and reading for the Bar was called in 1830, but never practised. In 1831 he married the only daughter of William Tennent, a wealthy Belfast banker, and on Tennent's death in 1832 he assumed his name and arms. He now devoted himself to the public life of the town, and was elected an M.P. for Belfast in 1832, which seat he held

with a slight intermission for thirteen years. One of the ablest speakers in Parliament, he was also a linguist and published a "Spanish Grammar." In 1841 he was appointed Secretary to the India Board, and in 1845 Secretary to the Governor of Ceylon, where he remained until 1850. In this same year his Belfast friends struck a gold medal in his honour. He published an account of the island in two volumes, which was illustrated by his fellow-townsman, Andrew Nicholl. On his return he sat for a few months as M.P. for Lisburn, and then was appointed Permanent Secretary to the Board of Trade. He resigned in 1867 and was Knighted by Queen Victoria. An intimate friend of Dickens, who dedicated to him his last completed novel, "Our Mutual Friend." He died in London on March 6th, 1869, and was buried in Kensal Green Cemetery. There is an excellent marble bust of Sir James Emerson Tennent on the grand staircase of our City Hall, executed in 1832 by Patrick M'Dowell, the famous Belfast sculptor.

Sir Joseph Napier, a name now almost forgotten, but in his day, as Gladstone stated, "he cannot but be considered as a man beyond his age." He is one of the three men of Belfast birth who have attained the highest position at the Bar, an honour which he shares with Lord Chancellor Cairns and Lord Chancellor O'Hagan. Born on December 26th, he was educated at the Academical Institution, and later at Trinity College, where he published in his 20th year "A Demonstration of the Binominal Theorem." In 1825 he took his degree, and entering for the Bar at Gray's Inn was called in 1831. In 1847 he was elected the member for Trinity College, and five years later he became Attorney-General for Ireland. In 1858 he was made Lord Chancellor of Ireland, and in 1867 he received a Baronetcy. During these years he published many articles on legal subjects, and also interesting essays and lectures, which were afterwards collected and published in 1888. He died on December 9th, 1882, and was buried in Mount Jerome Cemetery, Dublin. There is a marble tablet to his memory in St. Patrick's Cathedral. Although his name is forgotten to-day, his life can be read with great profit by anyone who wishes to understand the Belfast atmosphere about the middle of last century. The life of the Lord Chancellor has been written by A. C. Ewald in 1887.

On 2nd November, 1805, William Thompson, the famous naturalist, was born at the Corner House in Wellington Place, where the Scottish Provident Buildings are now situated. He was the eldest son of William Thompson, a prosperous linen merchant of the town. He early received a good education, and he entered the linen business in 1821. From this time he devoted his leisure moments to the study of Zoology, and contributed to various scientific journals about 80 papers of great value. Our Society when this building was used as a museum erected a "Thompson Room" to contain his valuable collections. His monumental work, "The Natural History of Ireland," was published at intervals. The first volume in 1849, the second in 1850, the third in 1851, and the last posthumously in 1856. He was easily the most brilliant of the Belfast scientists of the first half of last century. In 1843 at the age of 38 he was chosen President of the Zoological Section of the British Association, a high honour for so young a man. He died suddenly in London in 1852, and was buried in the Clifton Street Graveyard.

In 1808 Robert Shipboy Macadam was born in High St., two doors from Bridge Street, on the Castle Place side. He was educated at the Academical Institution, and was for many years Hon. Secretary of that College. Entering his father's business he travelled over the country, and early acquired a thorough knowledge of the Irish language. He is stated to have been familiar with thirteen languages, and to have added Spanish when upwards of 70 years of age. In 1835 he published "An introduction to the Irish language, intended for the use of the Irish classes in the Royal Belfast Academical Institution," Irish having been studied in that College from its foundation. A leading member of the Ulster Gaelic Society founded in 1830 for the preservation of ancient Irish literature. He was mainly responsible for the production of the First Series of the Ulster Journal of Archaeology, 1853-1862, a valuable contribution to Ulster history and antiquities, and he published in its pages a list of some 600 Ulster proverbs. He was an active member of our Society, and also of the Literary Society and the Harmonic Society. He established in 1838, along with his brother, the Soho Foundry in Townsend Street, which produced pumps, machines and turbines for many years. A keen student of the Irish language and Irish history throughout his life, he had the finest collection of Irish medical

manuscripts in the country. Some of his Irish manuscripts are in the Public Library, others are in the Royal Irish Academy. He died on January 3rd, 1895, in his 87th year.

On March 10th, 1810, Samuel Ferguson was born in High Street, of a family long resident in the County Antrim. Educated at the Belfast Academy, and afterwards in the Academical Institution, he proceeded to Trinity College, but never graduated. From his 22nd year he became a contributor to Blackwood's Magazine, and in the following year to the Dublin University Magazine. He was called to the Irish Bar in 1838, and for the next twenty years, whilst busily occupied with his professional work, his leisure hours were devoted to the production of poems and prose dealing with the history and legends of his country. In 1859 he was called to the Inner Bar, and in 1878 he retired from practice to become the first deputy keeper of the Irish records. In 1878 he received the honour of Knighthood, and in 1881 he was elected President of the Royal Irish Academy, a position which he retained till his death on August 9th, 1886. He is buried at Donegore. One of the greatest of our poets, "The Forging of the Anchor," "Willie Gilliland," and the "Lament of Deirdré," are all well known. The best of his short poems are contained in "Lays of the Western Gael," 1864. In 1872 he published his epic poem "Congal," based on an old Irish historical romance. As an antiquarian he contributed many papers on the subject of Ogham writing, and a book on "Ogham inscriptions" was published posthumously under his name. His birth centenary was celebrated in our city in 1910, and a tablet marks his birthplace in High Street.

On March 7th, 1810, another poet was born in this city, Francis Davis, who generally was known under his pseudonym of "The Belfast Man." He was a hand-loom weaver, but found time to cultivate his poetic talents, and in later life he was appointed an assistant librarian in the Queen's College, and had a Civil List pension. He contributed poems to the "Nation," who termed him "The Belfast Man," and other periodicals, and published several volumes of verse: "Miscellaneous Poems and Songs," 1847, "Lispings of the Lagan," 1844, "Belfast The City and the Man," 1855, "Tablet of Shadows," 1861, "Leaves from our Cypress and our Oak," 1863, "Earlier and Later Leaves," 1878, his complete collection poems. He sent a

copy of " Leaves from our Cypress and our Oak" to Queen Victoria, and received a personal letter from Her Majesty which stated that she "was much touched and pleased by the poems," and as a mark of her appreciation she presented him with a handsome gold medal. He died in Belfast on October 7th, 1885. In 1849 he ran for three months "The Belfastman's Journal," and in February, 1866, " Rambles and Scenes Along Highways and Byways Round Belfast," a shilling monthly, only one volume appeared.

In 1811 there was born on February 11th John Fisher Murray, the eldest son of Dr. James Murray, who was the personal physician to three Irish Viceroys—The Marquis of Anglesey, The Marquis Wellesley, and Earl of Haddington. His early education was obtained in Belfast, and later in Trinity College. Educated as a doctor he later became a barrister. In 1832 he read a paper before the Belfast Historical Society entitled "Ireland contrasted with Scotland," which was printed by James Wilson, Belfast, 1832. He wrote articles for "Blackwood's Magazine," " The Belfast Vindicator," " The Nation," " The United Irishman," and " The Dublin University Magazine." He published novels, satirical, and dealing with Irish life. " The Court Doctor Dissected," 1839, " The Chinese and a Minister," 1840, "The Viceroy," 1841, "The Environs of London, Western Division," 1842, and "The Environs of London," 1843. His last years were spent in retirement, and he died in Dublin on 20th October, 1865, and was buried in Glasnevin. In the Belfast Museum there are twenty-nine engravings, nine drawings and oil paintings by local artists which are known as the " John Fisher Murray " collection, and which will keep his name in memory.

Thomas O'Hagan, the only son of Edward O'Hagan, a catholic merchant, was born on May 29th, 1812. Educated at the Academical Institution, he was a brilliant scholar, and was awarded by his fellow students a gold medal for an essay on the "History of Eloquence, Ancient and Modern." In 1831 he was admitted a student of the King's Inns, Dublin, and in 1834 to Gray's Inn. Called to the Irish Bar in 1836 he was on the North East Circuit to 1840, during this time he edited " The Newry Examiner." From 1840 he resided in Dublin, engaged with an ever-growing practice. He was made a Queen's Counsel in 1849 and Queen's

Sergeant in 1859, Solicitor General for Ireland 1860-61, and Attorney General 1861-65. In 1868 he was constituted Lord Chancellor of Ireland, the first catholic who had held it since the reign of James II. His professional advancement was not due to politics. In 1870 he was raised to the Peerage as Baron O'Hagan. Throughout his long career he published many interesting papers and addresses on literary subjects, some of which were afterwards collected and published in 1884. "Selected Speeches and Arguments" was edited by George Teeling in 1885. His fame as an author should not be forgotten. He died on February 1st, 1885, and was buried in Glasnevin Cemetery, Dublin. There is a statue to his memory by Farrell in the Four Courts, Dublin.

On March 12th, 1818, Henry Riddel Montgomery, was born at 2 Arthur Place, the youngest son of a family of eleven. Two of his brothers were implicated in the rising of 1798, but were permitted to emigrate to America. He was educated at the Academical Institution, and later he resided in Ballymena with his brother James, a Solicitor. In 1836 he left for Mobile, Alabama, U.S.A. In 1838 he established a newspaper, "The Alabama Weekly Gazette," which had a short life. In April, 1839, he returned to Belfast, and in 1840 he published "An Essay towards investigating the causes that have retarted the progress of literature in Ireland, and the most efficient means of promoting its advancement." This was the subject of an address which he read to the Belfast Rhetorical Society. In October, 1841, he left for Australia, but returned in 1844 to London. In 1846 he obtained a post in the Irish Constabulary, and in the same year published his best known work, "Specimens of the early Native Poetry of Ireland in English Metrical Translations," in which we have Mangan's first appearance in book form. A second edition appeared in 1892. From 1851 until his death he resided in London. In 1860 he published a "Life of Thomas Moore," in 1861 " History, Opinions and Observations of Isaac Bickerstaff," in 1865 "Memoirs of the Life of Sir Richard Steele." He died on March 14th, 1904. The whole of our knowledge of this interesting writer is entirely due to the painstaking research of Mr. A. A. Campbell, who published an account of him in the *I.B.L.*

The 25th November, 1827, should be remembered as the birthday of Frederick Richard Chichester, better known

as the Earl of Belfast, and only son of the third Marquis of Donegall, as precocious a genius as ever adorned the northern metropolis. His sister was the mother of the Earl of Shaftesbury, Lord Mayor of Belfast in 1907. He was educated at home under private tutors, and later at Eton College. He early evinced a taste for literature, art and music, and having sold some of his musical compositions for £100 he devoted the whole amount for the relief of sufferers in the famine years of 1846-47. He became a Patron of the Working Classes Association in 1851, the aim of which Society was to extend the benefits of education to the people, and before which he read several addresses. In 1851 he also published a novel "Two Generations," and contributed articles to the "Edinburgh Review" and "The Northern Magazine." In 1852 he was President of the Belfast Classical Harmonists' Society, and in the same year he published "Poets and Poetry of the XIX Century," his most remarkable work. His health declining he set out for Italy, but the memory of our city and its surroundings were ever present before him. He died at Naples on February 11th, 1853, at the early age of 26 years. To his memory the Belfast citizens erected the first statue in the town, which was unveiled by the Lord Lieutenant, Earl Carlisle, on November 1st, 1855. A beautiful ode was composed at his death by Denis Florence M'Carthy (he)

Raised his voice and plied his pen
To enlarge the mental ken
Of "his humbler fellow men."

This bronze statue, a beautiful work of Patrick M'Dowell, and a gem of art, has had a strange vicissitude. It originally was erected at the corner of Wellington Place and College Square, but was later removed to make room for the redoubtable Dr. Henry Cooke. Before removal, however, the citizens had termed it the "Black Man" from the colour of the bronze, a name which has descended to the statue of Cooke. After numerous travels the statute has now been placed on the Grand Staircase of the City Hall, but its proper place, in my opinion, is in our Museum Building.

An image ye've raised of his manly form,
May it long in its beauty proudly stand
And show to many a race unborn
The features of one who loved the land.
'Tis the first I have borne on my ample breast,

And though ye may give me an hundred more,
A dearer was never by fame caressed,
The last of a generous line, and the best
Of all who have gone before.

Well may we say in the hackneyed phrase "Sic transit gloria mundi."

On January 13th, 1827, Joseph John Murphy was born in Belfast of Quaker parentage. He was educated at the Academical Institution, and after leaving he entered into business life. Interested in literary and philosophical subjects, he was one of the founders of the Belfast Social Enquiry Society, 1851, President of the Belfast Literary Society, 1855-56 and 1892-93, and five times President of our Society. For twenty years he was President of the Linen Hall Library. His published works are of a philosophical nature. In 1869 appeared "Habit and Intelligence," in 1872 "The Scientific Bases of Faith." In 1890 he published "Sonnets and other Poems," and in 1893 his last work, "Natural Selection and Spiritual Freedom." His works are forgotten to-day, but they were appreciated by his contemporaries, with whom he appears to have been highly popular. He died on January 25th, 1894, and was buried in Balmoral Cemetery.

In 1830 there was born in this city one whose name should be remembered for the donation of his magnificent collection of Irish Antiquities to his birthplace, the Rev. John Grainger. This collection will long preserve his memory in the North. He was educated at the Belfast Academy, and later in Trinity, where he graduated B.A. in 1855 and M.A. in 1859. He entered business for a time, but in 1863 he was ordained in Belfast. He was an active member of this Society, and devoted a large amount of his time to archaeology and geology. He contributed many articles on local history to the newspapers, which have never been collected into a single volume, as also articles on archaeology to the Journal of the Royal Society of Antiquaries. It is not so well known that he wrote a famous book called "The Swordsmen of Ulster," of which only a few copies are known to exist, dealing with the Northern Province in the times of the Plantation. In 1869 he was appointed Rector of Broughshane, Co. Antrim, where he lived for the remainder of his life. He died on November 23rd, 1891. His portrait in oils was a familiar object on the

Main Staircase of the Public Library, and is one of my earliest recollections in that building.

Our city should long hold in remembrance Isaac Ward, who was born on September 13th, 1834. He was descended from a family long settled in Northern Ireland. He was one of the greatest authorities on Old Belfast History, and in the later years of his life he contributed some 140 articles in the local press dealing with the history of this city. Although these articles are known, they have never been published in a compehensive form. I think this Society should reprint these articles, a suggestion first made by our Hon. Secretary, Mr. Deane, in 1924. They would prove a valuable addition to our knowledge of Old Belfast. He was also an astronomer of note, and wrote articles on this subject. He died at Belfast on October 11th, 1916, in his 83rd year, and was buried at Drumbeg.

John Ward, famous as an artist and Egyptologist, was born in Belfast on August 7th, 1832, the son of Marcus Ward, who founded the famous printing establishment which achieved world-wide fame for its high-class colour and artistic printing. He received his early education at the Academical Institution, and at the age of 15 years, on his father's death, entered the firm. He devoted his time to business for the next 30 years, but at the same time he cultivated the art of painting in water colours. Many of these paintings are highly prized to-day. In 1876 he retired, and began to travel in many countries of Europe. His attention was turned to Greece, where he amassed a unique collection of Greek coins, which are now in the Metropolitan Museum of New York. He then became absorbed in the land of the Pharaohs, and became a leading Egyptologist. He contributed articles to many magazines, and published "Sketches from Egypt," 1900, " The Sacred Beetle," 1901, " Greek Coins and their Parent Cities," 1902, "Our Soudan, its Pyramids and Progress," 1905. The later years of his life were passed at Farningham, Kent, where he continued to work up to his death on February 19th, 1912, in his 80th year. It is important to remember that two other members of our Society were Egyptologists. The Rev. Thomas Dix Hincks, 1767-1857, Professor of Oriental languages in the Academical Institution, and his more famous son, the Rev. Edward Hincks, 1792-1866, whose bust adorns the entrance hall of the Cairo Museum.

On May 10th, 1838, there was born in Belfast one of the very greatest writers of the century, whose fame in the literary world is equal to that of Lord Kelvin in the scientific. "A man so various that he seemed to be not one but all mankinds' epitome." His name is familiar in every English speaking country in the world, James Bryce, afterwards Viscount Bryce of Dechmount. A man of encyclopaedic knowledge, statesman, ambassador, scholar, linguist, and one of the greatest travellers in an age when travel is commonplace. His father, James Bryce, was the mathematical master in the Belfast Academy, and a Vice-President and Secretary of our Society. At the age of eight years the boy moved to Glasgow with his father, and was educated at the High School and the Glasgow University (1854-1857), later at Trinity College, Oxford. He was the first ever admitted to a scholarship without signing the thirty-nine articles. His career then was a succession of "First of Firsts." In 1862 he was elected to a fellowship in Oriel College, and he started his career of college teaching. In 1864 he published his "Holy Roman Empire," and in 1867 he was called to the Bar at Lincoln's Inn, and was now a regular contributor to many journals. In 1870 he was appointed Regius Professor of Civil Law at Oxford and in 1877 he published "Trade Marks, Registration Act and Trade Mark Law" and "Transcaucasia and Ararat." This last a book of travel, where he describes his ascent of Mount Ararat (17,000), the sixth recorded ascent in history. In 1880 he entered Parliament, and two years later retired from the Bar. In 1888 he published his classic work, "The American Commonwealth," on which he had spent some five years preparation. He resigned his Professorship in 1893 and in 1897 he published his book on "South Africa," in 1901 "Studies in History and Jurisprudence," and in 1903 "Studies in Contemporary Biography." In 1906 he was Chief Secretary for Ireland, and in 1907 he became the British Ambassador at Washington, which he retained to 1913, within a fortnight of his 75th year. In 1912 he published "South America," and in 1913 "University and Historical Addresses." In 1921 he published "Modern Democracies," a subject which had engaged his energies for four years. He died at Sidmouth on January 22, 1922, at the age of 84. At his death he had visited almost every country in the world He had received honorary degrees from 33

Universities in the world, and he was a member of 35 learned societies. He wrote on many subjects for over sixty years, and the British Museum Catalogue contains 92 entries under his name.

In 1841 Rosa Mulholland, afterwards Lady Gilbert, was born, the second daughter of Dr. Joseph Mulholland, whose eldest daughter became Lady Russell of Killowen. She was educated at home, but choosing art as her vocation she proceeded to London to study at South Kensington. There she started to contribute articles to various magazines and attracted the attention of Charles Dickens, who greatly encouraged her. At his request she wrote a novel, "Hester's History" (1869), dealing with incidents of the year '98. In 1891 she married the distinguished antiquary, Sir John T. Gilbert, whose biography she published in 1905. She also abridged and re-edited Maguire's "Life of Father Matthew," and published an abridged "History of Dublin" by her husband in 1903. She published three volumes of poetry—"Vagrant Verses," 1886, "Dreams and Realities," 1916, "Spirit and Dust," 1919. It was as a novelist, however, that she made her mark, some of her works being printed in Belfast. Between 1864 and 1916 she published some 40 novels dealing with Irish life. This vast amount of work probably entitles her to the distinction of being Belfast's most productive novelist. She died at Blackrock, Dublin, on April 21st, 1921.

On August 28th, 1842, Thomas Hamilton was born, the son of the Rev. David Hamilton, Minister of York Street Presbyterian Church, Belfast. He was educated at the Royal Academical Institution, and then proceeded to the Queen's College in 1859, where he had a brilliant career. He was the senior scholar in Natural History in the session of 1863-64, B.A. in the same year, and M.A. in the latter with 1st class honours. Entering the Presbyterian Church he was ordained in 1865 to York Street Presbyterian Church in his 23rd year. In 1878 he was appointed a Dean of Residence in the College. In 1889, on the death of the Rev. J. Porter, he was appointed President of the Queen's College, a position which he occupied with great distinction up to 1923, in 1908 when the College became a University he became its first Vice-Chancellor. He was responsible for many changes in the life of the College. To him is due the erection of the Students' Union, the centre of the communal

life of the undergraduates. The increase in the buildings and equipment during his tenure of office was phenomenal. In 1921 he was chosen a member of the P.C. He resigned in 1923. In 1924 the University conferred the degree of LL.D. on him, and he died shortly afterwards on May 18th, 1925. His literary work includes "Faithful unto Death," a memoir of Rev. David Hamilton, 1875, "Irish Worthies," 1875, "A History of the Irish Presbyterian Church," 1887, "Beyond the Stars," 1888, and numerous biographical articles in the D.N.B. His name will be long remembered by those who passed through the College during the last 35 years.

In 1845 Lavens Ewart was born, the second son of Sir William Ewart, M.P. Early delevoping literary tastes, he became an authority on Belfast printing and formed a splendid collection of books and pamphlets printed in this city, which he later bequeathed to the Linen Hall Library. He contributed several articles to the new series of "The Ulster Journal of Archaeology," but his outstanding publication appeared in 1886, "A Diocesan Handbook of Down and Connor and Dromore," a valuable work of reference, with great accuracy of detail. He died at a comparatively early age on December 13th, 1898, and was buried in Clifton Street Graveyard.

On February 7th, 1846, James Nicholson Richardson was born at 12 College Square. In the same year his father, J. S. Richardson, founded the modern industrial colony of Bessbrook, Co. Armagh, many years before Geo. Cadbury projected the Village of Bournville. He received his early education in a private school, and in 1858 proceeded to the Grove House School, Tottenham, the leading school among the Quakers. In 1862 he returned to Ireland, and settled in Bessbrook to learn the linen business. He remained there throughout his long life. He developed a taste for travel, and before his death had been three times around the world, and had travelled through the five Continents. Fom 1880-1885 he was an M.P. for Co. Armagh. Richardson was one of the very best types of linen magnates in the North of Ireland. He found time to write numerous essays and poems, and is probably the greatest representative of the Quaker Communion ever born in this city. In 1877 he published, with his sister, "The Quakri at Lurgan," new edition 1899. In 1882 "The Quakri at

Grange." In 1880 "O'Neill, a Tale of Mourne." 1895, "Six Generations of Friends in Ireland." 1913 "Concerning the New Bath House. 1915 "The little Venice on the Irish Waters." 1917, "Germans at Bessbrook, a Dream." 1918, "Concerning our Society." Some of his poems are very attractive.

Beauteous thy shores, Rostrevor, with a beauty
Radiant in emerald spring, or autumn brown,
And sooth we say as we return to duty,
God made the country, and man made the town.

He died rather suddenly, after an operation, on October 13th, 1921, and was buried in Bessbrook.

In 1851 Robert Magill Young was born, the son of the Right Hon. Robert Young. Robert M. Young was a very prominent member of our Society, as he was the Hon. Secretary from 1885 to 1911, a period of twenty-six years. He was educated at the Royal Academy, and later at the Queen's College. The firm of which he was the head erected many of the Presbyterian Churches in the city, The General Assembly Buildings, The Royal Academy at Cliftonville, and the Scottish Provident Institution. Young's literary efforts were almost entirely devoted to the elucidation of the history of his native city. He is a worthy and able successor of Joy and Benn, who laid the foundations, in the historic study of the Northern Metropolis. I count it a privilege that I was able quite recently to rescue his reputation from a very unjust and illiberal attack which was published last year. Our Society in 1911, on his retirement as Hon. Secretary, presented him with a portrait in oils of his distinguished father. His tenure in office was a notable one in the annals of the Society. In 1892 he published " The Town Book of the Corporation of Belfast." 1893, "Ulster in 1798." 1896, "Historical Notices of Old Belfast and its Vicinity," and in 1909, along with W. T. Pike, "Belfast and the Province of Ulster in the 20th Century." He died on November 19th, 1925.

On October 1st, 1858, there was born in this city John Horner, a man of many parts, scientist, linguist, botanist, and a great authority on all pertaining to the history of the linen trade. He was associated with the movement for the University Extension Lectures, and the Industrial Exhibition of 1895 was largely his work. He acquired a unique collection of spinning wheels and accessories from many European countries, which he gave to the Museum of Bel-

fast. This collection is the best of its kind in any industrial museum in the world, the catalogue containing almost 100 items. In 1912 he published " The Evolution of the Flax Spinning Spindles," and in 1920 there was published posthumously his work on "The Linen Trade of Europe during the Spinning Wheel Period," a contribution that will not be superseded for many years to come. He died in October, 1919.

In 1863 there was born one with whom the majority of members here were on intimate terms of friendship, the late Francis Joseph Bigger, author, antiquary, and Irish scholar, as genial and as friendly a spirit as one could ever hope to meet with. Educated at the Royal Academical Institution and in Liverpool, in 1888 he started practice as a solicitor, but a great amount of his time was devoted to the study of Irish Archaeology and Ulster History. He was chiefly responsible for the revival of the 2nd Series of "The Ulster Journal of Archaeology," which he edited from 1895-1912, some 17 volumes being published. He contributed to many journals in England and America, and restored at his own expense many ruined castles and churches. He kept alive in the Northern Province the tradition of Irish learning, and he stressed the value of the Irish language to the Ulster people. A long series of pamphlets on Ulster topics were the result of his busy pen. In 1909 he published "Irish Penal Crosses," in 1910 " The Ulster Land War of 1770," and "The Northern Leaders of '98," in 1924 he edited "Ulster Dialect Words and Phrases." He died in Belfast in 1926, and was buried at Mallusk, close beside one of the Northern patriots whose lives had occupied many of his leisure hours. His magnificent library on Irish History, consisting of some 3,000 volumes, was given as a free gift to the city, and is now housed in the Belfast Public Library. A memoir consisting of "Articles and Sketches" was published by Dr. Crone in 1927.

All the authors I have mentioned have gone to their great reward, but happily some of our distinguished townsmen, famous in literature, are still living. As my time, however, is drawing to a close I don't propose to do anything more than mention a very few of our living authors. The *Rev. James Owen Hannay* is well known, perhaps better as George Birmingham. As novelist and dramatist, he has produced a great amount of work, many of his novels are

very well known and popular. *James Douglas* has written several novels, and a memoir of Theodore Watts Dunton, 1904. He is the editor of the "Sunday Express," and a Director of the "Sunday Express" Newspapers. *Forrest Reid*, the novelist and critic, is another Belfast man, whose works are widely known and appreciated. *Robert Lynd*, the literary editor of the "Daily News," although resident in London, has not forgotten his native land, as witness his "Irish and English," 1908, "Home Life in Ireland," 1909, "Rambles in Ireland," 1912, and recently, almost every year, a wonderful series of essays has appeared from his gifted pen. *St. John Greer Ervine* has given us quite a number of plays, the most famous, perhaps, being "The First Mrs. Frazer." He is also the author of six novels, some essays, and two political studies—"Sir Edward Carson and the Ulster Movement" and "Parnell." Many other names could be mentioned, but I will close my series of 40 authors with *Patrick Gregory*, the poet and folk-lorist, who has printed quite a number of poems and ballads. Some of his historical ballads have already appeared in Irish school texts and others have been translated into Danish.

It would not be difficult to make a different selection of literary authors of Belfast birth, and any deficiencies or omissions I hope will be rectified by others who have a more extensive knowledge of this field. I hope this effort of mine will be merely a beginning, and that the rich ore of Belfast literary work will not be allowed to lie concealed.

Mr. Chairman we have here as comprehensive a selection of literary authors which I venture to affirm is unequalled by any other city of its size in Great Britain, and yet it appears that outside a few of their townsmen their names are almost forgotten. It is frequently a true statement in Scripture that a prophet hath no honour in his own country, and the same might be said here of many of our writers and scientists. It is customary in many cities to commemorate the fame of her outstanding benefactors by the erection of statues or other forms of memorial, but as yet Belfast has no memorial of some of the greatest of her children. The names of Sir Samuel Ferguson, Viscount Bryce, and others could be mentioned who have by their light among us conferred honour on our city, and by their great achievements have not only rendered themselves immortal but have reflected as it were some lustre on their birthplace. Writers of fiction and writers of travel, poets of simple lyrics or of

more sublime epics, essayists and historians, dramatists and critics, writers on art and archaeology, writers in every department of that great and comprehensive field which is covered by the term "The Humanities." All of them appearing before us in various guise, have accomplished some lofty purpose, performed some worthy deed, and have left this city the richer by their manifold productions. I have reserved, however, till the last the real aim that encouraged me to bring these remarks before you, and that is to encourage the teaching in our schools and colleges of our *Ulster contribution to civilisation*. At present the education of our people is divorced from the genius of her soil, and the rising generations are taught nothing of the lives of our noble benefactors. I am proud of my country nothwithstanding her divisions, her animosities, and her fissiparous tendencies, but thirty years of my life had passed away before I was acquainted with a single book on an Irish subject. In school and at college I learned nothing of my country, and our University to-day, which imparts the highest education to a worthy race, has no Chair of Irish History or of Irish Archaeology. It is essential, in my opinion, to ground our education in the soil of our native land, to enforce in our secondary schools a sound knowledge of Ulster History and Ulster Biography, and to see that our University takes cognizance of the manifold contributions of Ulster born men and women to the ever onward progress of civilisation.

Brief List of Belfast Authors with the Year of their Birth.

1753	Charles Hamilton.
1754	Henry Joy.
	Dr. Wm. Drennan.
1756	Elizabeth Hamilton.
1778	Dr. Samuel Bryson.
1789	Sir Henry Pottinger.
1794	Sir Alexander M'Donnell.
1799	Edmund Getty.
1802	Robert Patterson.
1804	Sir Joseph Napier.
	Sir Jas. Emerson Tennent.
1805	Wm. Thompson.
1808	Rev. Wm. Hanna.
	Robert Shipboy M'Adam.
1810	Sir Samuel Ferguson.
	Francis Davis.
1811	John Fisher Murray.
1812	Thomas O'Hagan.
	Rev. Isaac Nelson.
1818	Henry Riddel Montgomery.
1827	Earl of Belfast.
	Joseph John Murphy.
1830	Rev. John Grainger.
1832	John Ward.
1834	Isaac Ward.
1836	Sir Wm. M'Cormac.
1838	James Bryce (Viscount).
1841	Lady Gilbert.
1842	Rev. Thomas Hamilton.
1845	Lavens Ewart.
1846	James N. Richardson.
1851	Robert Magill Young.
1858	John Horner.
1863	Francis J. Bigger.
1865	Rev. James Owen Hannay.
1867	James Douglas.
1876	Forrest Reid.
1879	Robert Lynd.
1883	St. John Greer Ervine.
1886	Patrick Gregory.

13th December, 1932.

Mr. R. S. Lepper, M.A., President, in the Chair.

PROFESSOR T. THOMSON FLYNN, D.SC.

"BIOLOGY AND ARCHÆOLOGY AT THE ANTIPODES."

Slides.

[No Abstract.]

14th February, 1933.

Mr. R. S. Lepper, M.A., President, in the Chair.

A. E. MUSKETT, M.SC., M.R.I.A.

"ROMANCE OF THE FUNGI."

Slides.

[No Abstract.]

14th March, 1933.

Mr. R. S. Lepper, M.A., President, in the Chair.

E. ESTYN EVANS, M.A., F.S.A.

"MODERN GEOGRAPHY."

ANNUAL MEETING.

112th SESSION.

The Annual Meeting of Shareholders and Members was held in the Old Museum Building on Tuesday afternoon, 31st October, 1933, to receive the Council's report for the Session with the Hon. Treasurer's statement; to elect five members to the Council of Management, and to transact such other business as may be brought forward pertaining to an annual meeting.

Mr. R. S. Lepper, M.A., LL.M., F.R.Hist.S., President of the Society, occupied the chair, and among those present were Dr. S. W. Allworthy, M.A., Colonel Berry, M.R.I.A., Mr. W. B. Burrowes (Hon. Treas.), Very Rev. W. P. Carmody, M.A., M.R.I.A., Messrs. A. H. Davison, F.R.S.A.I., E. J. Elliott, Godfrey Ferguson, F.R.I.B.A., J. W. Gillmour, F. M. Greeves, F. Adens Heron, D.L., L. C. Hodgson, M.A., and Mrs. Hodgson, H. C. Lawlor, M.A., M.R.I.A., D. E. Lowry, J.P., Prof. W. B. Morton, M.A., A. G. Pomeroy, M.A., Dr. S. Simms, Joseph Skillen, Captain Turner, M.C., Professor Gregg Wilson, M.A., D.Sc., and Arthur Deane (Hon. Sec.).

An apology for inability to attend the meeting was received from Sir Richard Livingstone.

The Hon. Secretary reported that the meeting had been advertised in the local papers and read the notice which had been sent to Shareholders and Members.

The Chairman called upon the Hon. Secretary to read the annual report of the Council, which was as follows:—

ANNUAL REPORT.

Your Council are called upon to lay before the Shareholders and Members their report for the 112th Session which ends to-day. The year was uneventful, the Society working smoothly and steadily.

Shareholders and Members.

Your Council are glad to report that the number of Shareholders and Members at the end of the period covered

by this report show an increase, totalling 229 as compared with 222 in the previous year. Every effort on the part of members should, however, still be made to increase further the membership of the Society under the new subscription scheme created in 1914, whereby a person can be admitted on payment of ten shillings per annum; and by an additional minimum subscription of five shillings may become a member of the Archaeological Section.

OBITUARY.

The Council record with much regret the death of Wm. Swanston, who died on the 24th December, 1932. Mr. Swanston was our oldest member. He read his first paper before the Society in 1870 and at the half century meeting in 1871 was elected an Hon. Associate. He gave freely to the Society's Museum, enriching the Ethnological, Irish Antiquities and Geological collections. The series of graptolites collected by Mr. Swanston in Co. Down is important and well known. An obituary notice will be appended to this report. (Page 85.)

LECTURES.

There have been six ordinary meetings of the Society held during the past Session. The Presidential Address by Mr. R. S. Lepper, M.A., was given on the 29th November, 1932, who dealt with "Student Life in Late Victorian Times." The second meeting was held on the 13th December, when Professor T. Thomson Flynn, D.Sc., dealt with the "Biology and Archaeology of the Antipodes." At the third meeting on 10th January, 1933, a paper was read by Dr. Richard H. Hunter on "The Infancy of Medicine." The fourth meeting on the 24th January, the subject taken by Dr. Samuel Simms was "Sketches of some forty authors of Belfast Birth." At the fifth meeting on the 14th February, Mr. A. E. Muskett, M.Sc., lectured on the "Romance of the Fungi." The final meeting was given on the 14th March when Mr. E. E. Evans, M.A., F.S.A., lectured on "Modern Geography." All the above mentioned meetings were well attended and many of the lectures provoked a good deal of discussion.

On the 27th May last a visit was paid by members to the Harbour Office, by kind permission of the Chairman and Members of the Harbour Board. They were met by

Mr. M. J. Watkins, General Manager and Secretary, who acted as Guide Lecturer, conducting the members, numbering about forty, around the various rooms and galleries and explaining the many treasures of artistic, topographical, historical and nautical interest which had accumulated mainly through the activities of Mr. R. E. Herdman, D.L., Chairman of the Harbour Board, and a Shareholder of the Society.

The members were entertained to tea by the Harbour Commissioners and at the close, on the proposal of the President, Mr. R. S. Lepper, M.A., seconded by Professor Gregg Wilson, D.Sc., a vote of thanks was passed to the Chairman and Members of the Board and to the General Manager for their great kindness and hospitality on this most interesting occasion. This was responded to by Sir Robert Baird, K.B.E., and Mr. Robert A. Mitchell, LL.B., members of the Board, and Mr. Watkins.

Thanks are also due to the lecturers of the season for their interesting and stimulating lectures, and your Council are glad to report that they have arranged a series of lectures of special interest, including Dr. Starkie, of Trinity College, Dublin, so well known as a traveller and musician, and Professor Harris, the distinguished anthropologist of London University.

It is hoped that the visit to the Harbour Office will form a precedent for others of a like nature, viz., for visits by the Society to institutions or business concerns of special scientific, historic, or economic interest, situated in or near Belfast.

Archaeological Section.

The Archaeological Section continues the good work which it commenced in 1917, both in the Field and by means of original papers by members. The arrangement with the Archaeological Department of Queen's University has been productive of good results and several important excavations of prehistoric sites have been made. The success of the Section is largely due to the energies of its Hon. Secretary, Mr. H. C. Lawlor, who has prepared an excellent programme of papers for the coming session. The Committee will submit its report of the year's work to the General Meeting of the Section to be held next month.

Your Council desire to thank most heartily the local Press for the reports of the meetings and the work being carried out by the Society generally.

THE BUILDING.

The Council are glad to state that the Society's property is in good order. The Ulster Academy of Arts is now established on the top floor of the building, and a new agreement for letting has been arranged between the Royal Ulster Society of Architects and your Council. The Council, however, regret to report that the small room on the ground floor, formerly occupied by the Belfast Institute of Chartered Accountants, remains vacant. On the 3rd July your Council granted the use of rooms for the quarterly meeting of the Royal Society of Antiquaries on their visit to Counties Antrim and Down, a privilege which was much appreciated by a large audience, many of whom came from Central or Southern Ireland.

EXCHANGES.

The Council continue to receive, in exchange for our *Proceedings*, various Transactions from the leading philosophical and scientific societies in different parts of the world. Your Hon. Librarian, Mr. W. M. Crawford, reports that one new exchange has been arranged during the year—*the Proceedings of the University of Durham Philosophical Society*. From that Society has been received as complete a set as possible of their earlier *Proceedings*. In return for these, as full a set as possible of our Society's *Proceedings* has been sent to the exchanging Society. Through the scheme organised by Mr. Kenneth Povey, the Librarian of Queen's University, for exchange of duplicate publications, it has been possible to fill up notable gaps in some sets of Societies' *Proceedings* now in the Belfast Municipal Museum Library.

Your Hon. Treasurer, Mr. W. B. Burrowes, will submit to you the Financial Statement of receipts and expenditure and the accounts will be audited by the Government Auditor in accordance with the regulations of the Educational Endowments Acts. All unnecessary expenditure has been avoided during the year so as to consolidate and improve the Society's position by reducing its bank overdraft.

In accordance with the constitution of the Society this meeting will be asked to elect five members of Council for the ensuing year in place of the following who retire by rotation:—Sir Richard Livingstone resigns in view of his impending departure from Belfast. The other four members, Professor Morton, Messrs. F. Adens Heron, R. S. Lepper and D. E. Lowry are eligible for re-election.

Financial Statement.

The statement of accounts was submitted by the Hon. Treasurer (Mr. W. B. Burrowes) and showed that the debit balance had been reduced by £76, bringing it to £99.

Adoption of Report.

The Chairman (Mr. Lepper), in moving the adoption of the reports, thought they might congratulate themselves on having such satisfactory statements. They had a slight increase in numbers and a substantial diminution of their overdraft so it seemed that they had turned the corner, thanks to his predecessors and to Mr. Deane and Mr. Bel Burrowes. If they did not undertake any policy of adventure, they were on the upgrade financially. Proceeding, the President paid tribute to Sir Richard Livingstone, Vice-Chancellor of Queen's University, who was leaving Belfast for Oxford University. They were losing not only an eminent scholar but a most charming personality in the departure of Dr. Livingstone.

Mr. A. G. Pomeroy, M.A., seconded the motion and trusted that the increase in their membership would be continued and multiplied. There were not nearly so many members of the Society as there ought amongst people of education and scientific attainment. He paid tribute to the old Society and hoped that it would continue and prosper.

The reports were unanimously adopted.

The Council.

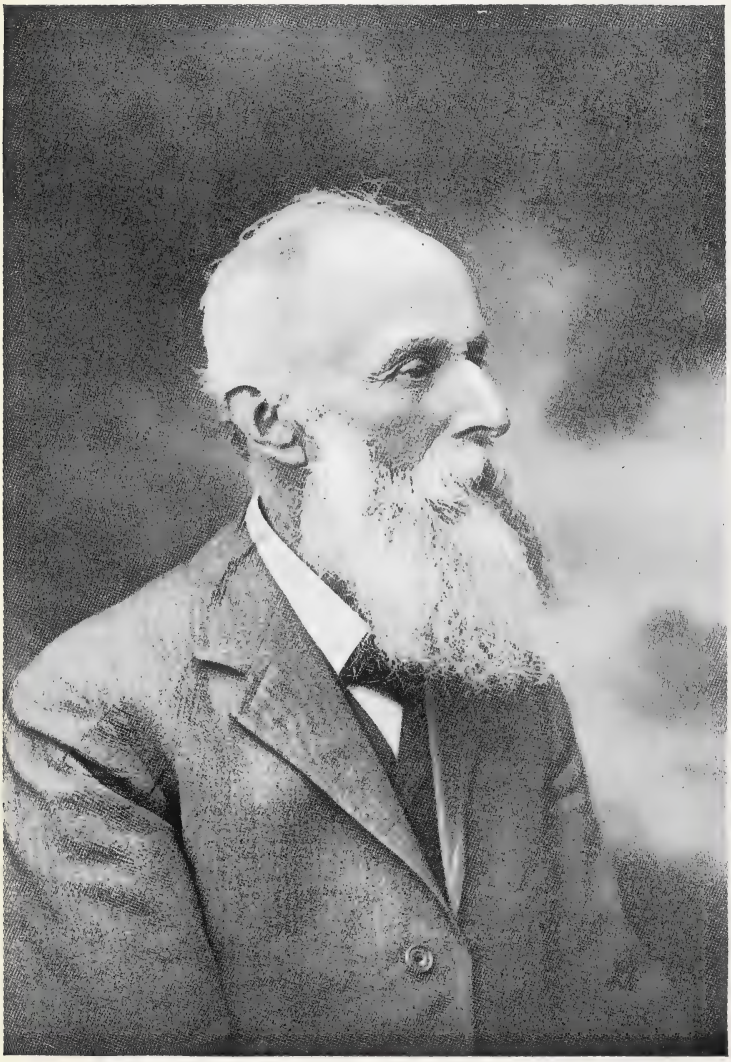
The Chairman said he would be glad to receive nominations for the Council. On the motion of Mr. J. W. Gillmour, seconded by Mr. Alex. Davison, F.R.S.A.I., Professor Morton, Messrs. F. Adens Heron, R. S. Lepper and D. E. Lowry were re-elected to the Council for a further period of

three years, and Professor T. Thomson Flynn, D.Sc., was elected on the Council for the same period in place of Sir Richard Livingstone, retired.

The President thanked all those present for their support during the year, and, on the motion of Mr. E. J. Elliott, a cordial vote of thanks was passed to the President, the Hon. Treasurer, the Hon. Secretary and Hon. Librarian for their services.

At a meeting of the Council held subsequently, Mr. H. C. Lawlor, M.A., M.R.I.A., was unanimously elected President for the ensuing year.

BRITISH MUSEUM



Reproduced from The Irish Naturalists' Journal, vol. iv., 1933.

WILLIAM SWANSTON, F.G.S.

Born, 1841, Died, 1932.

OBITUARY.

WILLIAM SWANSTON, F.G.S.

1841—1932.

Although not locally born, William Swanston was distinctly and essentially a citizen of the Northern Capital. Born at the Barbadoes, West Indies, on the 10th April, 1841, he came to Ireland in his first year, his father, Robert Swanston, being appointed Master Gunner of Carrickfergus Castle, a post he held for a quarter of a century (1842-1867). Both parents were Scots, his mother being Allison Forsyth, a name also borne by his wife, Isabella Forsyth, of Berwick-on-Tweed, to whom he was married in 1880.

His early education was received in Carrickfergus, where he was a diligent and patient scholar. His apprenticeship was served with A. & S. Henry & Co., Linen Merchants, in Belfast. His abilities soon enabled him to start business which he did in partnership with Thomas Bones. Commencing in College Square East, then moving to the corner of King Street, and afterwards built their own large warehouse at the corner of Queen Street and College Street with a finely carved head of Sir Arthur Chichester over the entrance door; and subsequently the business was transferred to Mountcollyer Factory on the Limestone Road.

William Swanston, influenced by his youthful residence in the stronghold of Carrickfergus, was early imbued with historic and natural history research, making himself proficient in all local studies, especially in the history of Carrickfergus and its Castle, amassing, at his residence, Farmhill, Dunmurry, a quantity of old views, drawings, pamphlets and maps of great interest and value, now deposited in the Record Office, Royal Courts of Justice. The collection also included material relating to Antrim and Down. He possessed a rare collection of books invaluable for local history. The gem of his collections, however, was his Goldsmithiana, which was sold in London in 1926. Never before had been gathered together such a collection of the works of this far-famed Irish poet.

Mr. Swanston was an expert photographer and gathered together a store of material pictorially unique. He took an active and generous part in 1894 in restarting the *Ulster*

Journal of Archaeology, as was evidenced by his gift of a reproduction of the large coloured 1680 facsimile map of Carrickfergus.

Mr. Swanston's chief research in natural history lay in geology, spending much time in its study in the field. Joining the Belfast Naturalists' Field Club in its fifth session (1867-8) he was its Hon. Secretary for 15 years (1875-1890), following his friend, William Gray, M.R.I.A., many years of which he spent as Joint Secretary with his life-long friend, Hugh Robinson, M.R.I.A. From 1890 until 1900 he was Hon. Librarian and from 1892 until 1894 President of the Club. He was elected an Honorary Associate of our Society in 1871 and a Fellow of the Geological Society of London in 1877. The Linen Hall Library made him a Governor in 1884 and Hon. Secretary in 1902, a post he filled until 1922. From then until 1926 he was Vice-President, when he resigned owing to advancing years. He always took a deep interest in our Society and freely gave his time and service in its interest. He gave able assistance in the compilation of the *Guide* issued on the occasion of the visit of the British Association in 1874. In collaboration with Professor Charles Lapworth, he prepared a paper on the Silurian rocks of Co. Down, with plates of fossils, which was published as an appendix to the Belfast Naturalists' Field Club *Proceedings* (1876-7), together with several other papers of geological interest.

No member of our Society had a better scientific record than William Swanston. Sincere in his own convictions, liberal in his friendships at all times, kindly and courteous to all, a generous and sincere friend and a model citizen until his death on the 24th December, 1932.

A.D.

ARCHAEOLOGICAL SECTION.

ANNUAL MEETING AND REPORT.

The seventeenth annual meeting the Section was held at 3.30 p.m. in the Old Museum on Wednesday, the 6th December, 1933. The Chairman, The Very Rev. the Dean of Down, presided. Apologies for absence were read from Messrs. R. S. Lepper, M.A., D. E. Lowry, R. A. Mitchell, LL.B., and W. B. Burrowes.

The Hon. Secretary read the Annual Report of the Committee, as follows, which was adopted.

REPORT.

Your Committee has to report that the decline in membership mentioned in last two reports seems to have been stayed and the actual number of members on the roll is now 118, an increase of 9.

Since our last Annual Meeting the repair and preservation of the Friary of Bun-Na-Mairgie has been almost completed, only a few details having been left over until next Spring for completion. During the summer two important objects of antiquity were offered to the Section for investigation, namely a lake dwelling or crannoge in a drained lake at Knockgorm, some six miles south of Dromore, Co. Down, and a souterrain discovered underneath the rath in the Belfast Corporation Seaview estate within the City boundary. The Committee issued a circular to all the members of the Section inviting volunteers for the investigation of these sites, and reports with regret that practically no responses were forthcoming. This may in part be explained by the fact that the Crannoge at Knockgorm is in a very remote situation where lodgings would be difficult to obtain, and its distance from Belfast would render it almost inaccessible without great loss of time and expense in getting there and back for daily work.

The Souterrain and rath in the Seaview estate present an interesting problem; before the souterrain was accidentally discovered, the rath had been much defaced by garden plot holders, who almost levelled the rampart. Naturally

the plot-holder in whose allotment the rath stood, had little idea of looking for antiquities, and as the surface had been tilled intensely, little hope now remains of finding anything of interest on the rath site. One relic was preserved in the form of a plough coulter or share, but its age is very questionable. In this connexion, an article in the current number of the Journal of the Society of Antiquaries of London (Vol. xiii, p. 455) on plough coulters found in the Roman Camp at Silchester is of much interest. As to the souterrain itself, it was quite full of water when accidentally discovered. The Works Department of the Corporation lent us a motor pump by which the water was pumped out, and the Souterrain found to consist of at least two chambers at right angles, each about 20 feet in length. The floor, however, was deep in slimy mud and proper examination was impossible as more water was coming in. The question of making a drain to keep the souterrain dry is at present under consideration by the Estates Committee of the Corporation.

We are glad to record that under the auspices of the Belfast Municipal Museum, Messrs. E. E. Evans and Oliver Davies, assisted by Miss Gaffikin, conducted a very important excavation at the horned Cairn at Ballyalton, Co. Down (formerly regarded as a stone circle and so marked on the O.S. map), and have arranged to give a joint paper on their investigation in February.

Three papers were read during the Session, viz.—*The Celtic Church*, by Colonel Berry; *Recent Progress in the Investigation of the Brehon Laws*, by Doctor M. O'Brien, and *Excavation of a Horned Chambered Cairn at Goward, Hilltown, Co. Down*, by Messrs. E. E. Evans and O. Davies.

For the coming Season eight Lectures or papers have been arranged, as follows:—

The National Trust; its Aims and Achievements, by Mr. V. J. B. Torr, Lecturer to the Trust.

Early Norman Ecclesiastical Architecture in Britain, by Mr. James Taylor.

Bardic Schools and Courts of Poetry, by the Rev. L. P. Murray, B.A.

Anglo-Irish Survivals in Ulster in the Early 16th Century, by Mr. D. B. Quinn, B.A.

The Investigation of the Horned Cairn at Ballyalton, by Messrs. Oliver Davies, M.A., and E. E. Evans, M.A.

The Ancient Monuments under the Care of the Government of the Irish Free State, by Mr. Harold G. Leask.

Early Monastic Orders in Ulster, by the Rev. Leo M'Keown, C.C., B.A.

Sumerian and Other Antiquities of Mohenjo Daro and the Indus Valley; Recent Excavations, by Councillor F. G. H. Anderson, M.A., I.C.S.

The deepening of the River Bann continues and various specimens of bronze and other implements and weapons have been deposited in the Museum during the summer, but the work has not yet extended to Toome Bar, which is expected to prove rich in such finds.

The Hon. Treasurer's account shows that we have in hand, after paying all accounts, the sum of about £150, from which the Committee will be glad to contribute grants to members for Archaeological work if approved.

The election of office bearers for the ensuing year resulted as follows:—Chairman, Mr. Oliver Davies, M.A.; Hon. Secretary, Mr. H. C. Lawlor, M.A., M.R.I.A. (President of the Society); Committee, The Very Rev. W. P. Carmody, M.A., M.R.I.A., Colonel Berry, M.R.I.A., Messrs. E. J. Elliott, A. A. Campbell, R. S. Lepper, M.A., Joseph Skillen, E. E. Evans, M.A., and Miss Gaffikin; the foregoing, with Messrs. Arthur Deane, M.R.I.A., and W. B. Burrowes (*ex officio*) comprise the Committee of twelve for the year 1933-34.

Hearty tributes of appreciation of the services of the Dean of Down, as Chairman of the Section for the past seven years, and of regret on his retirement from that office, were expressed by Mr. E. J. Elliott, Colonel Berry and the Hon. Secretary.

BUN-NA-MAIRGIE FRIARY REPAIR FUND.

Amount acknowledged in previous Report ...	£343	3	0
Mr. Edward E. Moeller, Buffalo, N.Y. ...	3	0	0
Holiday Fellowship, Limited	1	14	0
Collected in money-box at the Friary ...	1	14	2
	£349	11	2

This Fund is closed and the Friary is now vested as a National Monument.

EXCAVATIONS AT GOWARD, NEAR HILLTOWN, CO. DOWN.

By Oliver Davies, M.A., and Estyn Evans, M.A., F.S.A.

INTRODUCTION.

In accordance with a scheme passed by the committee of the Archaeological Section of the Natural History and Philosophical Society, it was decided that the section should co-operate with the departments of Archaeology and Geography, Queen's University, in undertaking archaeological excavations. The object of the scheme was to set on foot a series of scientific investigations into the antiquities of Northern Ireland, and also to train University students in the methods of archaeological research. This, the first excavation, was undertaken on a megalithic monument in the townland of Goward, near Hilltown, Co. Down. The party consisted of Miss Gaffikin, Mrs. Anderson, Mrs. Evans, Col. Berry, Messrs. Davies, Evans, Latham and Kells.

Partly for reasons of economy and partly because it is difficult and dangerous to dig with unskilled labour, the work, except for the shifting of one large stone, was done by the excavators in person.

Work started on Monday, May 16th, 1932, and lasted until the following Sunday. It was to some extent hampered by bad weather; rain one day prevented all work, and other days were showery, but we were able to examine all the chambers and to trench areas where particular problems called for examination.

I.—THE MONUMENT.

By E. E. Evans.

Description of Site.

Goward Hill, in the townland of that name, reaches its highest point some 2m. E.N.E. of Hilltown, Co. Down. Its topographical relations may be defined as follows. Immediately to the north of the central Mournes, and

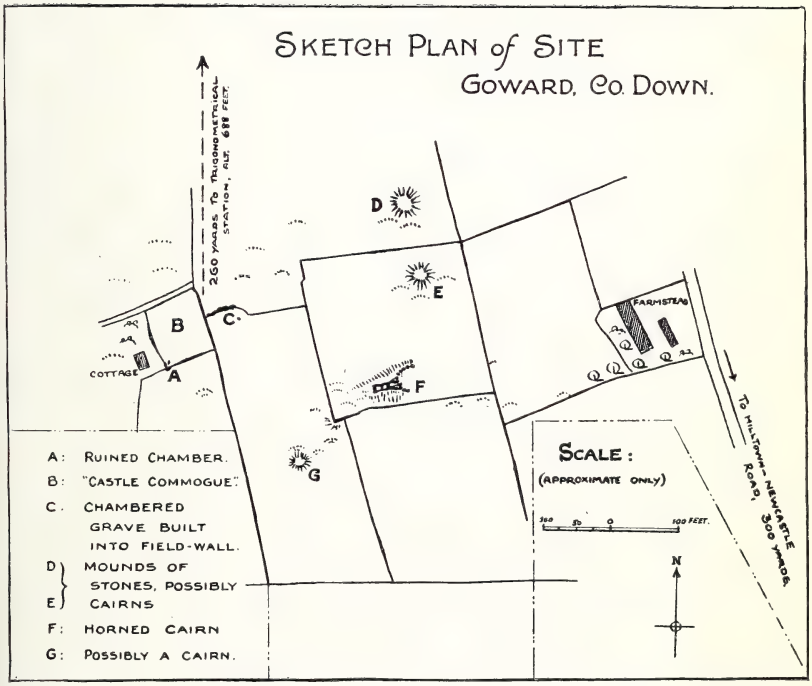

SKETCH PLAN of SITE
GOWARD, Co. DOWN.
260 YARDS TO TRIGONOMETRICAL STATION, ALT. 698 FEET.
COTTAGE
A
B
C.
D
E
F
G
FARMSTEAD
TO HILLTOWN-NEWCASTLE ROAD, 300 YARDS.
SCALE:
(APPROXIMATE ONLY)
100 FEET.
N
A: RUINED CHAMBER.
B: "CASTLE COMMOGUE".
C. CHAMBERED GRAVE BUILT INTO FIELD-WALL.
D, E } MOUNDS OF STONES, POSSIBLY CAIRNS
F: HORNED CAIRN
G: POSSIBLY A CAIRN.

Plate 1.

BRITISH MUSEUM
NATURAL HISTORY

parallel to their long axis, a belt of Silurian rocks, running from S.W. to N.E. through Hilltown, lies between the granites of the Mournes and the Newry granites of the Rathfryland area. This geological variation is masked by a mantle of glacial drift, but it retains an orographical distinction, the Silurian rocks, altered north of the Kinnahalla river by contact with the Newry granites, forming a series of rounded hills which begin in the S.W. in Goward (688′).

The southern slope of this hill, facing the pass which opens along the valley of the Upper Bann to the heart of the Mournes, is dotted, in a space of some 3 acres, with prehistoric monuments constituting an important group. These are lettered from A to G on the following plan (plate 1).

A. appears to be a ruined megalithic chamber, with three uprights *in situ* and what may be a cap-stone.

B. This is a small field, somewhat irregular in shape, reputed to be the site of Castle Commogue. Some portions of the field walls seem better built than is normal; their lower courses consist of large stones apparently cemented with mud. On the whole, however, there is little to suggest that this is a prehistoric site.

C. is a long megalithic grave built into a field wall, with a standing stone, possibly the remains of a "horn," alongside.

D. and E. Mounds of stone which may be ruined cairns, though there is no surface indication of chambers. D. is said to have been a quarry, and in places the hard rock shews through.

F. A horned cairn.

G. Possibly a cairn, but to all appearances a natural outcrop.

THE CAIRN.

The monument selected for excavation (F), is the south-westernmost of the group, a ruined cairn oriented E.-W., lying alongside a field wall. There seems to be no reference to this cairn in archaeological literature (Fig. 2).

Its most conspicuous feature is a semi-circular ring of massive stones (11 in number) at the east end; and the 25″ O.S. map (XLVIII, 6), with almost characteristic indifference to archaeological truth, designates the monument a

stone circle. The semi-circle of stones is really the forecourt or horned entrance of a large burial cairn (maximum measurements some 115′ by 50′ by 6′ high), an irregular heap of earth and stones of all sizes, overgrown with coarse grass and bracken. Quantities of stones from the cairn have doubtless been removed at some period to construct the neighbouring walls. The cairn appears originally to have been parabolic, but its limits are somewhat irregular, especially on the south. We observed no trace of a peristalith, except possibly at the N.E. angle (See plan). Almost flush with the surface of the cairn, extending west for some 28′ from the horns, were three series of parallel upright flags which were later seen to form three aligned megalithic chambers. These were full of earth and stones and had no covering of any sort. What appeared to be stone cists on the north side of the cairn were proved by excavation to be merely accidentally grouped stones.

An unusual feature is that the horns are not set symmetrically on the chambers, but are so placed that while the north horn consists of 6 uprights, the south horn has but three (the figures omit the two portal stones which form an integral part of the east chamber). Nor is this due to the removal of some stones from the south side. We failed to find trace of the disturbances of soil section that such additional stones must have left behind them. Moreover, the stones as they stand form a nearly true semicircle, and it should be noticed that the east edge of the cairn, behind the north horn, is aligned on the terminal stone of the south horn. The stones will for convenience be numbered from 1 to 11, beginning on the south side. The diameter, measured from stone 1 to stone 11, is 37′.

The Chambers.

Works has begun on the chambers, each of which was gradually cleared down to virgin soil. The three chambers are separated by two sills formed of single blocks of stone, reaching to about half the height of the chambers, the sill to the west 2′ 3″, and that to the east 2′ 6″ in height (Plate 3). The sill-slabs, and also the larger stone blocking the west end of the chambers (4′ 8″ high), were found to be resting directly on virgin soil, approximately at its original level; and these three stones clearly occupy a key position in the construction of the monument. They were doubtless the first

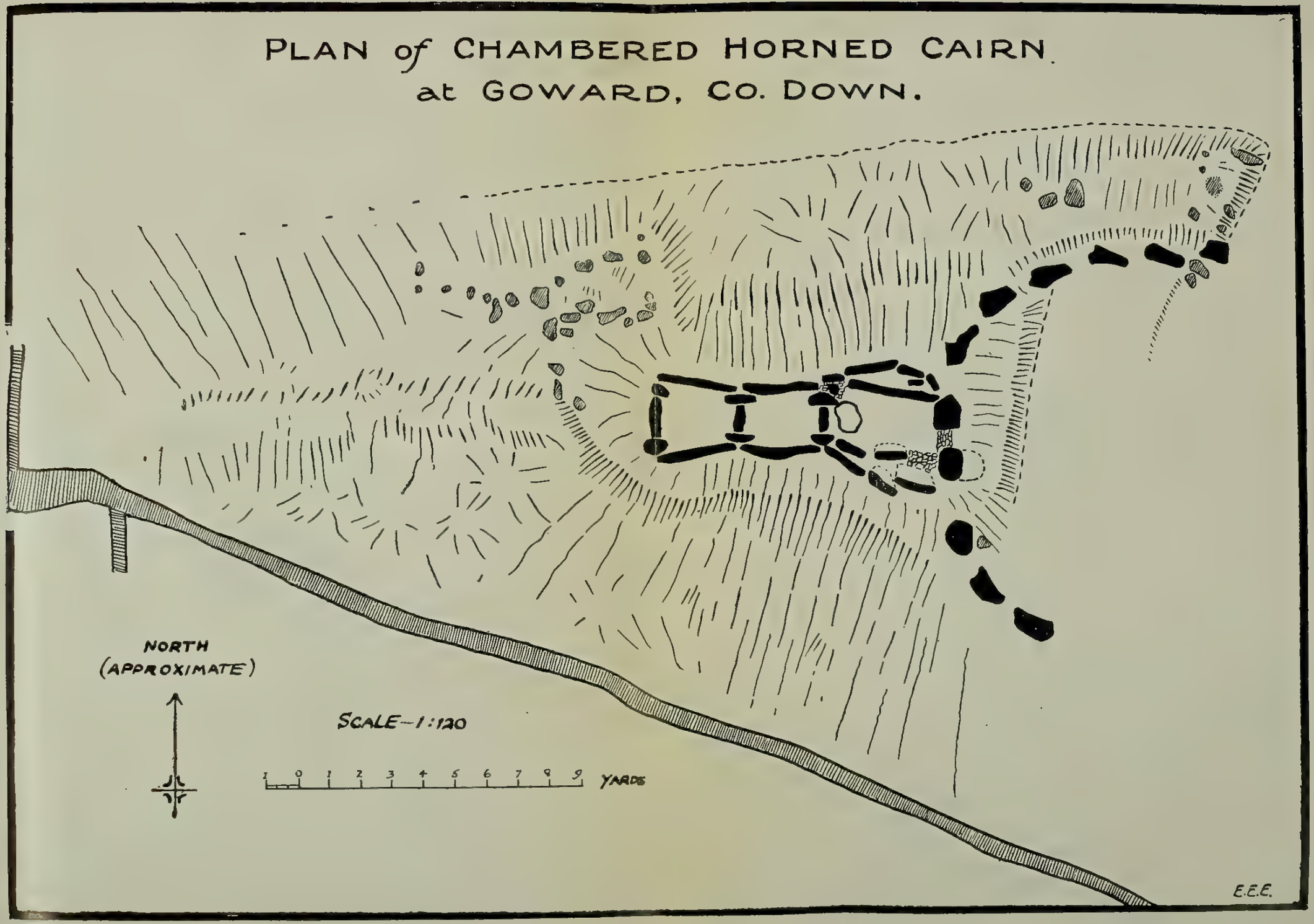

PLAN of CHAMBERED HORNED CAIRN
at GOWARD, CO. DOWN.
NORTH
(APPROXIMATE)
SCALE—1:120
1 0 1 2 3 4 5 6 7 8 9
YARDS
E.E.E.

Plate 2.

BRITISH MUSEUM
NATURAL HISTORY

stones to be placed in position: without them the monument as it stands to-day would probably collapse. Flanking these three stones are three pairs of jambs, averaging 4′ 6″ in height, and against them the side walls of the west and central chambers rest, tilted slightly in so that they would have remained in position without the supporting pressure of the cairn behind them. These side walls are massive orthostatic flags averaging 7′ 6″ by 4′ 6″ by 9″. The eastern chamber differs in several ways from the cist-like arrangement of the other two chambers, as we shall see later. The constructional system of sills, jambs and side-flags, simple yet ingenious as it is, seems to be an unusual device in megalithic practice; only partial parallels can be adduced outside the north of Ireland, e.g., similar jambs separated by entrance sills occur in the cists (degenerate chambers) of the Mull Hill Circle, Isle of Man (*Antiquaries Journal*, April, 1932, pp. 146-157).

The jambs are all carried up to a uniform height of c. 4′ 9″ above the original surface as detected beneath the sills; one jamb, only 4′ in length, was supported on a packing of stones and soil placed under and around the base. The uniformity of level thus obtained may be presumed to have a bearing on the roofing of the chambers, though we have no direct evidence as to how this was achieved.* It may be observed in the same connexion that the side walls present fairly level edges at the top, whereas they are usually curved and irregular where they rest on the ground.

The eastern chamber presented several novel features. Its central axis is tilted some 10° S. of the main E.-W. axis of the monument, and in place of the sill-and-jamb construction its eastern end is formed by two stones of the semicircular forecourt (Nos. 4 and 5). Stone No. 4 was found to be leaning to the east at a considerable angle, and indeed the only support these two stones have (they rest just above the original ground level) is provided by a grass-grown bank of earth and stones continuous with the general level of the cairn, crossing the forecourt between stones 3 and 8. This bank, breaking the continuity of the level forecourt, and marring the impressiveness of the monument, blocks what must have been the original entrance.

*Horned cairns as a class were roofed by means of corbelling, except when degenerate.

The portal stones 4 and 5 would no doubt have been kept in place originally by a heavy lintel or cap-stone; it may be noted that their squarish level tops contrast with the irregular tops of the other stones of the horns. Between the portal stones a gap, 2′ wide, was found to have been blocked with irregular debris resting on a base of rough dry walling.

The chamber thus enclosed is longer than the other two: 10′ 4″ as against a mean of 7′ 3″. This greater length seems to have occasioned a difficult problem for the builders; at any rate the side walls were here neither so simply nor so effectively contrived. On the north side, a nine-foot-long flag, wedged behind stone No. 5 on the east, fell short of the jamb in the N.W. corner; the intervening gap was packed with loose stones, behind which lay the western-most of five small flags, set edgewise, that enclosed a crescentic space outside the chamber.

This curious doubling of the side walls was repeated on the south. Here the inner wall was composed of two slabs, one of them leaning in badly. The 4′ wide gap between this and stone No. 4 was filled with loose stones somewhat regularly piled up so as to give continuity to the south side of the chamber. So far as could be judged, these stones had been placed in position after the collapse of stone No. 4. Between this rough dry walling and the outer wall was a pocket of loose earth. This outer wall consisted of three slabs, one resting against the south-west jamb, the others, leaning in, continuing its line so as to enclose, this time, a wedge-shaped space. Another flag, some 3′ square, was found loose in the east chamber, but it was impossible to tell whence it had come; a farmer told us he remembered it used for "pounding whins." It is possible that it originally filled the gap on the south wall of the chamber.

In each case it is to be noticed that the outer slabs rested against the jambs on the west, whereas the inner flag on the north—and presumably the missing slab on the south before the collapse of stone No. 4—leaned against the portal stones on the east. The twin side walls thus shew an interesting reciprocal disposition. The outer flags, whatever their purpose may have been, serve to protect the inadequately supported inner flags (resting only against the unbuttressed portal stones) from the pressure of the cairn.

Plate 3.—Showing Sill and Jamb construction and flat slab in east chamber

BRITISH MUSEUM
NATURAL HISTORY

So far we have not found an exact parallel to this double wall.

For the monument as a whole we have close parallels in the northern half of Ireland, in Western Scotland and in the Isle of Man, e.g., Carn Ban and East Bennan (Arran) and Cashtel yn Ard (Isle of Man).

CONTENTS OF THE CHAMBERS.

The eastern chamber was further differentiated from the other two by its contents. All three were filled with stones, none too large to be removed by hand, and with dark soil containing bracken roots; but differences became apparent as the top layers were removed. The central and western chambers will therefore be dealt with first. The average dimensions are 7′ 3″ by 5′, with the western end of the west chamber widening to 6′ 6″ so as to embrace the jambs and large end-slab in which the megalith terminated. At a depth of some 2′ 6″ below the height of the side walls, i.e., at about the depth of the sills, a layer of black wet peaty humus (average 4″ thick) was met with in both chambers, doubtless the remains of former vegetation. In the complete absence of "finds" it is impossible to date these layers, but they had the appearance of being comparatively modern. Samples were sent for analysis and were pronounced to be remains of a much more recent vegetation than the oak charcoal which was found in lower layers.

The stone filling continued for another two feet, when it passed into brown gravelly earth lying directly on virgin soil. In the central chamber this untouched floor formed a level depression some 9″ below the original position of the surface as detected under the sills, and it was covered with a uniform depth of 4″ of brown earth, which yielded bits of charcoal identified as oak (*Quercus robur*). In the west chamber, however, the virgin soil dipped in a central hollow having a maximum depth of 1′ 4″ below the level of the base of the sills; it had a loose filling of yellow gravelly earth, some 9″ thick. In both chambers pieces of pot were found in the brown earth immediately above virgin soil (See Sections).

THE EAST CHAMBER.

In the east chamber, instead of the vegetation layer at the level of the sills, small parcels of ox-bones were revealed

among the stone filling between depths of 3′ and 4′ 6″ below the top of the N.W. jamb, here taken as the point of reference. The exact location of each of the 23 packets of bones was ascertained. The bones will be described with the other finds in the second part of the report. With one exception (B. 15), the bones were all located in the western and central thirds of the chamber. The exception is of special interest because it occurred at the base of the rough dry walling on the S.E. side of the chamber; this supports the view previously expressed, and indeed clear enough on structural grounds, that the walling is a secondary feature, and its construction may now be connected with the deposition of the ox bones.

Below the main area of the bone deposits the stone filling of the chamber soon gave way to the usual brown earth that heralded the approach of the firm till; but at the western end it was replaced by a flat granite slab (av. 2′ 6″ across) laid horizontally and packed around with yellow clay. This stone was found to rest on several small stones lying in turn directly on virgin soil, at a depth of just over 5′ below the top of the N.W. jamb (plate 3).

The only sherd found in this chamber came from the top of the clay packing around this flat slab, immediately under the angle of the N.W. jamb.

In the eastern half of the chamber a thin black old-vegetation layer, similar to that found at the level of the sills in the other two chambers, rested on the brown earth floor.

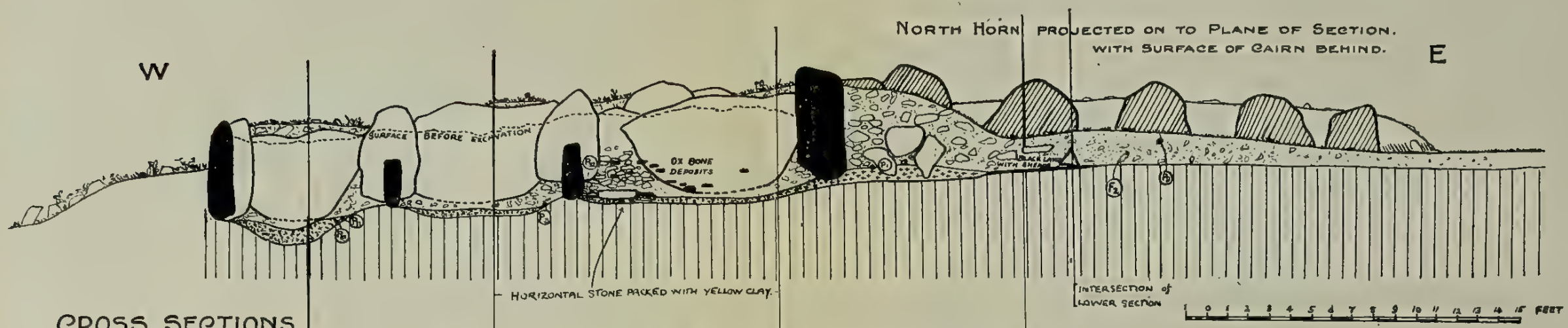
The Forecourt.

Attention must now be directed to the forecourt, across which two trenches were dug; one continuing eastwards the E.-W. line of the cairn from the portal stones, the other at right angles running north from the horn stone No. 1. The bulk of the sherds found in the process of excavation came from the zone at the crossing of these trenches, where a considerable area was cleared down to the till.

Reference has already been made to the mound formed by the extension of the loose material of the cairn into the forecourt between stones 3 and 8. Along this line it ended abruptly and gave way to a slight undulation only a few inches above the level of the field and continuous with it.

CHAMBERED HORNED CAIRN at GOWARD, Co. DOWN.

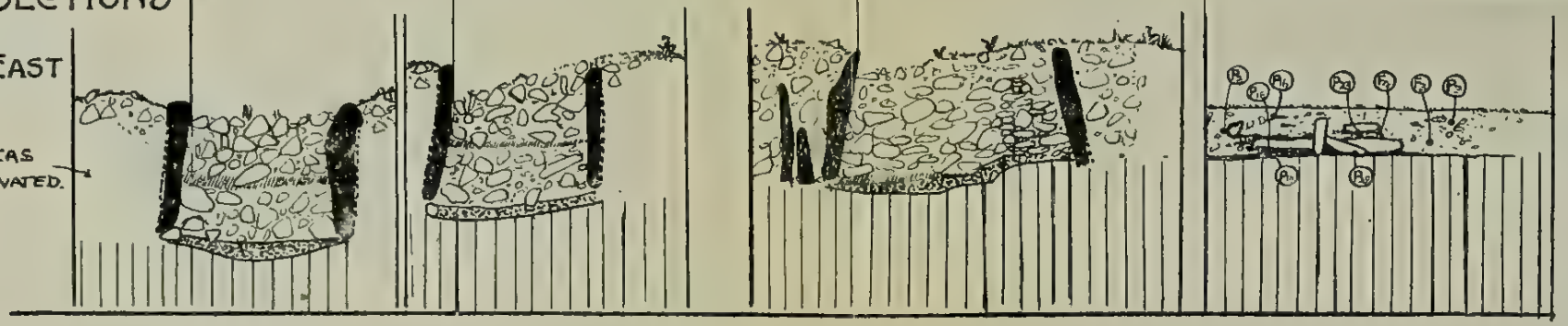
LONGITUDINAL SECTION - LOOKING NORTH.


W
E
NORTH HORN PROJECTED ON TO PLANE OF SECTION.
WITH SURFACE OF CAIRN BEHIND.
SURFACE BEFORE EXCAVATION
0% BONE DEPOSITS
HORIZONTAL STONE PACKED WITH YELLOW CLAY.
INTERSECTION of LOWER SECTION
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 FEET

CROSS SECTIONS

LOOKING EAST

BLANK AREAS UNEXCAVATED.



KEY

- UNDISTURBED SOIL
- DISTURBED SOIL
- POWDERY GREY EARTH
- BROWN EARTH
- BLACK LAYERS (IN FORE-COURT)
- OLD VEGETATION LAYERS
- HORIZONTAL STONE PACKED WITH CLAY

SECTION ALONG TRENCH CUT FROM SOUTH HORN TO NORTH.

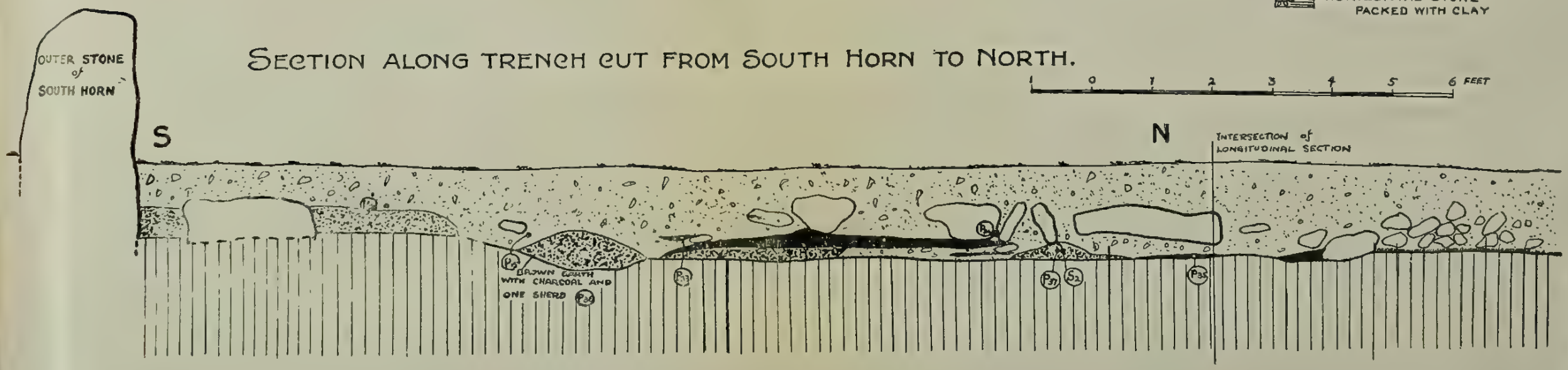

OUTER STONE of SOUTH HORN
S
N
INTERSECTION of LONGITUDINAL SECTION
BROWN EARTH WITH CHARCOAL AND ONE SHERD
0 1 2 3 4 5 6 FEET

Plate 4.

BRITISH MUSEUM
NATURAL HISTORY

The irregular surface of this mound reached its maximum height between stones 3 and 6, i.e., opposite the end of the east chambers and its annexes.

We have seen that the 2′ wide entrance between stones 4 and 5 was blocked with loose dry walling covered with small stones and earth. Underneath this filling and running to the limit of the mound, was a layer of powdery grey earth, averaging 9″ in depth, immediately above virgin soil, here just below its presumed original level. In and above this grey earth were several large stones, which made up the bulk of the bank. In the top of the grey earth, under one of these stones, a fragment of pot was found (See sections, plate 4).

To the east, a more regular arrangement of horizontal slabs began to appear, together with the grey earth and pieces of charcoal identified as oak. Beyond the edge of the mound the grey earth disappeared, and the slabs were found to be coated, above and below, with a black sticky substance containing bits of charcoal and sherds. This rough paving, with occasional smaller slabs set edgewise, continued over an area of nearly 2 square yards*. Sometimes there would be one slab above another, but always with a black coating on all sides. The sherds came from these black layers at depths varying from 3″ below the present surface to the level of the untouched till at 20″. Outside this concentrated area of finds, along the trenches cut to the south and N.E., an occasional black layer was found, usually above a few inches of brown earth; and both brown and black layers yielded an occasional potsherd. But nothing save one piece of pot, 4″ deep, and a burnt flint were discovered in the forecourt to the east of the main finds-zone. In the south trench (see section) a slight depression was found filled with brown earth containing a good deal of charcoal and one sherd.

ENGRAVED STONE.

One interesting find of another kind remains to be mentioned here. A loose stone, measuring some 1′ by 1′ 6″, noticed by Miss Gaffikin on the surface of the cairn behind

*No interpretation of these features is attempted here; when further information about Irish horned cairns has been obtained it will be possible to review comparatively the evidence here presented without comment.

the north horn, has on it an engraved lozenge ornament of shallow grooves averaging ·35″ in width. Squeezes of this were taken by Miss Gaffikin and by Col. Berry; and a sketch (scale 1/2) is reproduced (plate 5).

The engraving is, in style and technique, characteristic of the Bronze Age, and parallels may be found on the decorated stones at Lough Crew and also at New Grange. There is no reason to suppose that it is not contemporaneous with the construction of the monument.*

II.—THE FINDS.
By Oliver Davies.

Pottery.

Nearly all the pottery was found in a restricted area between the horns, along with large stones and black earth; a few sherds came from the chambers and from places some distance from the central group. An attempt has been made to sort the sherds into pots, but in the absence of joins this is often difficult, some connections may be doubtful, and some separate groups may belong to each other; there is also a considerable group of miscellanea, which cannot certainly be connected with anything. Sherds from individual pots were usually found close together inside the area, the pots which seemed rather scattered being B1, E, and F2, though the assignation of all the fragments to these groups cannot be considered certain; sherds from different pots were often in close proximity, as for instance those from P7 and P29 seem to belong to several groups. Nor could any stratification be determined, though individual pots tended to occur at constant depths; but there was little soil, and the large stones caused sufficient differences in level to account for the divergence of depth in some parts (See plate 5).

A1. 14 fragments from P29, 1 from P34, and 2 unidentified. The biscuit is on an average ¼″ thick, and is dark grey and flaky with white specks in it; the inner surface is of nearly the same colour as the biscuit, and is slightly lustrous with fine brush-marks; it appears to have been

*I am indebted to Miss Gaffikin, to Professor H. J. Fleure, and to Mr. W. J. Hemp for help, and for information used, in the preparation of this report.

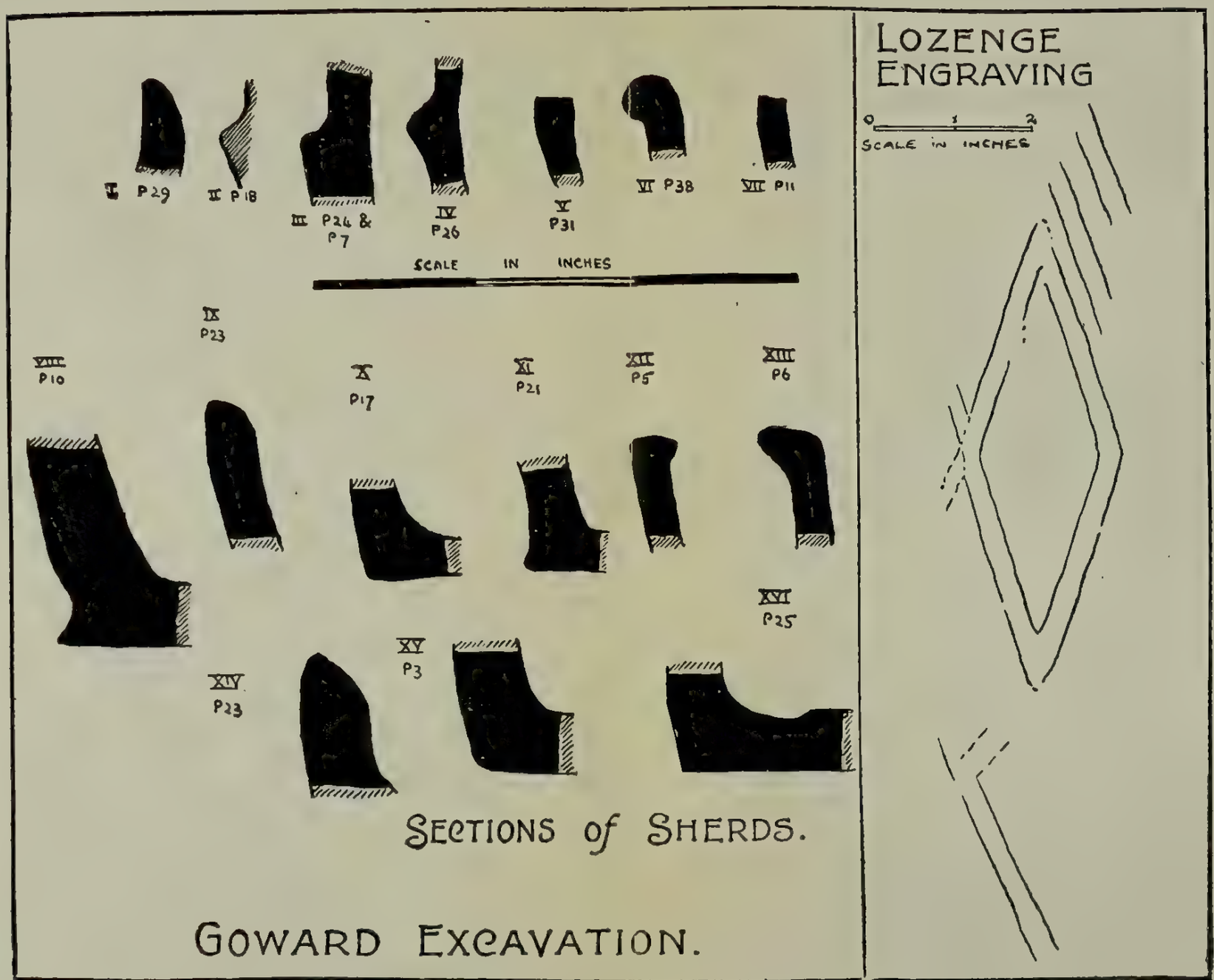

I P29
II P18
III P24 & P7
IV P26
V P31
VI P38
VII P11
SCALE IN INCHES
VIII P10
IX P23
X P17
XI P21
XII P5
XIII P6
XIV P23
XV P3
XVI P25
SECTIONS of SHERDS.
GOWARD EXCAVATION.
LOZENGE ENGRAVING
0 1 2
SCALE IN INCHES

Plate 5.

BRITISH MUSEUM
NATURAL HISTORY

treated with a thin wash of its own clay levigated, and afterwards smoothed with the hand, which rubbed off the wash where there were small protuberances such as particles of grit. The outer surface has been covered with a thick yellow-brown slip of badly levigated clay, which on some sherds has rubbed off and on others cracked; there are brush-marks visible but the slip does not seem to have been polished.

With regard to the shape, we have one fragment of rim (ill. I), and nearly all the other pieces have a concave curve on the slipped outer surface; there is no fragment of base. The sherds therefore seem all to come from the neck and shoulder of a globular jar with slightly splaying rim, concave neck, and fairly straight shoulder.

A2. 1 fragment from P28. There is a fairly large sherd forming part of the neck and shoulder of a pot similar in shape to A1; it has a yellow-brown slip on which brush-marks are visible on the inside, and is heavily covered with soot on the outside; its biscuit is flaky and about ¼″ thick.

This shape is closely paralleled by Hallstatt pots from Holland (1).

B1. 17 fragments from P18, 3 from P7, 1 from P14, 2 from P16, 1 from P17, 2 from P37, 1 from P39, and 2 unidentified. These may all come from the same pot, though perhaps more than one is represented. The biscuit is soft and usually yellow-grey, though varying to dark grey, and ·3—·4″ thick; the outer surface is red unslipped and unpolished save for slight polish on the shoulder; the inner surface is grey tending to black, unpolished and unslipped, but perhaps treated with a thin wash, the colour being probably due to the pot having been baked inverted and soot having penetrated the clay.

Many of the fragments are slightly curved, but no rim or base was found, only some pieces of a sharp relief-rib shoulder (ill. II). A slight curve on one fragment precludes the idea that it could be a base, but though it was probably as the illustration shews, it is not proved that it was not the other way up; such an arrangement would however give an awkward pot.

B2. 4 fragments from P7, 1 from P8, 1 from P17, 1 from P24 (2). The biscuit is yellow-grey and ·25—·3″ thick, the inside grey, the outside bright red pebble-polished and unslipped. The pot has a relief-rib shoulder

similar to B1 (ill. III), which was placed more than ¾″ below the rim; there is a crack between the shoulder-rib and the body-wall, so in this case the shoulder seems to have been applied, though in B1 it seemed rather that it had been pinched out.

B3. 5 sherds from P26 and 4 from P29. A pot with yellow-grey or grey biscuit ¼″ thick, red and unslipped inside, and covered outside with a thick pebble-polished yellow-brown slip. The only shape is a relief-rib shoulder like B1 and B2 (ill. IV), set more than ¾″ below the rim.

The relief-rib is not dissimilar from the pottery from Mull Hill, Isle of Man (3), a late neolithic site probably contemporary with the early bronze age in England. It is also found on sandhill pottery from Whitepark Bay (4) in layer II, which seems to be bronze age; and is figured on sandhill pottery by Macalister (5). There were several examples at Ballyalton, and the shape may, therefore, be regarded as neolithic.

C1. A rim from P31. The biscuit is yellow and sandy, tending to split and rub away, though harder on the inside. The rim is flattened (ill. V).

C2. A similar rim and another sherd from P11 West Chamber (ill. VII); the biscuit is soft and not sandy, red and ¼″ thick. The rim and outside have been covered by a slightly lustrous brown-black wash on which brush-marks are visible; but it is uncertain whether this is due to soot or may be described as a paint. The shape is uncertain, but it was probably a globular jug or bowl with neck.

These flattened rims are very rare in the neolithic period. There is one from layer III at Whitepark Bay and one or two from near Larne. They are common in the earliest iron age at Scarborough (6), thought not so common at St Catherine's Hill (7). They also occur at Ballykennedy rath, but the dissimilarity of the rest of the pottery here from that at Goward makes it probable that this is due to survival or to chance.

D. A hooked rim from P38 (ill. VI). The biscuit is chocolate and ·35″ thick; the pot is apparently slipped and highly pebble-polished on the inside, though rougher on the outside. This sherd may be paralleled in neolithic ware from Yorkshire (8), and in a sherd from near Larne; the technique and shape are common at Ballyalton.

Before turning from the fine wares, one may mention a highly polished and very thin red sherd from P18, shewing brush-marks but no slip, perhaps a wash of its own clay. The remaining pots to be described are coarse.

E. 23 sherds from P10, 4 from P7, 1 from P17, 1 from P20, 1 rim from P23 which probably belongs. The biscuit is red and crumbly, the thickness ·3″ near the rim, ·4—·5″ lower down, and thickening to ·85″ at the base. The inside is red, the outside mainly sooted, but a few brush-marks are visible, and it may have been covered with a thin dark-coloured wash. The rim is plain and rounded (ill. IX), the base flat with a pronounced splay (ill. VIII).

F1. 4 fragments from P7 and 11 from P17. The biscuit is red and crumbly, ·25—·45″ thick and about ·35″ at the base; the inside is brown or red, the outside covered with soot save on the base, where perhaps the fire was hot enough to burn it away. The pot does not seem to have been slipped. The base is flat and not splaying (ill. X).

F2. A composite heap of coarse sherds which may all belong to one pot, 1 from P2, 2 from P5, 2 from P6, 3 from P7, 1 from P15, 1 from P21, 1 unidentified. The biscuit is hard and reddish, ·35″—·4″ thick; the inside is covered with a very thin brown wash on which brush-marks are visible, the outside with soot save on the base. The rim was flattened and seems to have been irregular, sometimes plain, sometimes swelling on the inside (ill. XII), sometimes perhaps on the outside (ill. XIII); the base was flat and slightly splaying (ill. XI).

F3. A rough flattened base from P3 Central Chamber, probably on virgin soil. The biscuit is sofe and red, ·45″ thick; the inside is red-brown and unslipped, the outside red and covered with soot. The surface is rather rubbed, but the base seems to have been splayed little if at all (ill. XV).

The rims of this coarse pottery vary so much that parallels cannot profitably be adduced. The flat bases would however be exceptional in neolithic pottery, though one occurs at Abington; with or without a splay they are however found in some quantities at Scarborough and St. Catherine's Hill; one occurs, though technically different, in layer II at Whitepark Bay; and the shape, being simple, continues till late times and is paralleled at Nendrum.

G. A large number of fragments from P25, 1 from P30, and 1 from P31. The biscuit is red, rather hard, and ·35″—·45″ thick. The outside is red, the inside brown or black with brush-marks. The pot was bucket-shaped, with flat base and walls rising almost perpendicularly (ill. XVI); there is a slight groove on the inside, as if the joint of base and walls was smoothed off by running the finger round. The base appears to have been 6″ or rather more in diameter. These bucket-shaped pots are Hallstatt-la Tène, being closely paralleled at St. Catherine's Hill.

H. 7 formless coarse fragments from P16. The biscuit is reddish and ·35″ thick; the outside is partly covered with soot, the inside rather hard and brown, marked with reeds and unslipped.

I. A rim from P23 and a sherd from P22. These two sherds are of very different thicknesses, but perhaps belong to the same pot, as they were found near together and are both remarkably uneven on the inside (ill. XIV), as if made on a bad sand-mould. They are red and unslipped, covered with soot on the outside. The feel of them differs from the rest, and they may be recent. They were found at a little distance from the main mass of pottery, but not far from some sherds which are doubtless contemporary with the majority. Their depths were also different, 3″ and 9″. Their nature and connection must therefore be considered doubtful.

None of this pottery was decorated. Most of the sherds were hand-made domestic ware. In some cases a slip was applied, in others a wash of the same or perhaps a different colour; these shapes are late, whereas those shapes without brush-marks (B and D) are early. Nor are brush-marks found at Ballyalton, so that they seem to afford a criterion for distinguishing neolithic from iron age pottery.

The only parallel technically to our fine wares before the Hallstatt period is neolithic; we have seen that the relief-rib shoulder is probably connected with the neolithic pottery from Mull Hill, but most of the shapes from here are distinct, the rims are mainly bent over, and the bases are all rounded. Also, though some of the shapes might be more recent, the jug A and the bucket-shaped pot G are Hallstatt-la-Tène, and though it is not possible to parallel all the Goward shapes on any one English site of this period, they can find approximations on one site or another.

Thus, though the series has not yet been accurately worked out in Ireland, the bulk of this pottery may be dated at not very far from 500 B.C. We have further proved that iron age sherds occurred apparently on virgin soil inside the chambers. These then were open in the early iron age, the roof probably having disappeared, because the bank in front of the portals probably points to the monument having been closed in early times, as at Ballyalton. The absence of human bones proves that if the chambers were ever used for burial they were carefully cleaned out in the early iron age, when perhaps the pit in the west chamber was emptied. If the black earth and sherds from between the horns is not *in situ*, the chambers must have been emptied a second time.

In conclusion our thanks are due to Prof. Gordon Childe, to Dr. Mahr, and to Mr. Stuart Piggott for most kindly examining specimens of this pottery and pronouncing on its date.

Miscellaneous Finds.

Fragments of charcoal and of dark soil containing charcoal and recent roots were found in all three chambers and between the horns. The charcoal from the east chamber was too small to identify, the rest has been most kindly examined by Forestry Products Research Laboratory at Princes Risborough, and pronounced to be oak, agreeing most closely with the present British species *Quercus Robur* L.

Of the stones, S1—3 come from between the horns; S1 is a rolled and rather irregular quartz pebble, S2 a round pebble of unusually rotten granite, S3 a well-rounded water-worn pebble of quartzite; none of these shewed evidence of burning. S4 and 5 came from the East Chamber; S4 was a small white rolled quartz pebble, found with the bones B3, and probably placed there intentionally, as we shall see the bones to have been; S5 was a small unrolled chip of white quartzite, apparently not artificially chipped, but perhaps introduced into the chamber with a purpose. F1 from the north wedge of the East Chamber, was a piece of flint, possibly worked but perhaps only a flake, from which the bulb of percussion seems to have been intentionally removed; it is curious to note that a flint flake was found at Beltany in a similar position just outside one

chamber, which also had had the bulb of percussion removed. The other pieces of flint come from between the horns; some seem to have been rolled, and none have any signs of working, but certainly F2 and F3 have been burnt, and were found in the black earth with the pottery.

One of the most curious features of the excavations was the deposits of bones in the East Chamber; there were 23 in all, sometimes consisting of one bone, sometimes of a number. They were deposited among the dry-stone filling of the chamber, so that they had excellent drainage, and their state of preservation may therefore be better than the normal one of bones of their age, whatever that be; and it was particularly noticed that none of the bone deposits were crushed by superposed stones, but they were carefully laid in the cracks among stones, sometimes running round the corner of a stone, but not usually in prepared hollows of unusual size. One may also cite the circumstances of the finding of B1; the five bones lay under a medium-sized stone laid horizontally and packed round with yellow clay containing no roots, which covered the stone and extended on its north side to 3″ distance from its edge. The bones seemed to have been roughly arranged criss-cross; they were in a hollow under the horizontal stone, by which they were not crushed at all, though there did not seem to be any traces of a cist.

The bones have been most kindly examined by Mr. Stendall and Mr. Stelfox, who pronounce them to be Bos, not quite adult; from the absence of duplicates apparently only one animal is represented. Mr. Bryner Jones feels grave doubts whether they can be regarded as contemporary with the monument. Most of the bones were incomplete when found, some seemed to have been intentionally split. Details have been deposited in MS. in the Belfast Museum Library. It is hard to resist the conclusion that the purpose of these deposits was religious, and that they represent some form of sacrifice; but unless the roof was still intact in the early iron age, there is no evidence for determining their age or the date when the east chamber was filled, with which they are undoubtedly contemporary; for the one sherd P32 from the clay packing of the sillstone just above virgin soil is undatable. If the roof-stones were in situ in Hallstatt times, the east chamber must have been open to

permit access to the others, in which case the bones belong to a subsequent period. Mr. Baddeley has drawn our attention to various ox-sacrifices within the last 300 years, chiefly in Western Scotland the and Isle of Man. Their purpose seems usually to have been the avoidance of murrain; but in the Isle of Man in 1884 a farmer sacrificed a heifer to appease the spirits of a monument which had been opened by two archaeologists.

(1) Smith, *Archaeologia*, 77, 179.

(2) It cannot be considered certain that these sherds all come from the same pot, and of the two pieces of shoulder one is rather rubbed and so its profile is doubtful.

(3) Piggott, *Antiquaries Jour.* 1932, 146.

(4) *Irish Nat. Jour.* 1, 1925/7, 280.

(5) Ireland in pre-Celtic Times, p. 199.

(6) Smith, *Archaeologia*, 77, 179.

(7) Hawkes, Myres and Stevens, *St. Catherine's Hill, Winchester.*

(8) *Archaeol. Jour.*, 88, 103, fig. 10, no. 5.

EDUCATIONAL ENDOWMENTS (IRELAND) ACTS, 1885

(As amended by Section 3 of the Administrative Provisions Act (N.I.), 1928).

Dr. **The Account of Belfast Natural History and Philosophical Society for the year ended 31st October, 1933.** *Cr.*

RECEIPTS.

To Subscriptions		£57	1 0
,, Dividends		13	10 0
,, Rents		215	7 8
,, Miscellaneous Receipts, viz.:—			
Archaeology	£18 0 0		
Nendrum—5s., £2 and 9s.	2 14 0		
Bonamarghy—£7 8s. 6d., £3 and £1 14s. 0d. ...	12 2 6		
Publications	0 4 0		
Conversazione	6 8 0		
		39	8 6
,, Balance		99	8 11
		£424	16 1

PAYMENTS.

By Balance as per last Account		£175	16 11
,, Maintenance of Premises, etc., Old Museum ...		2	0 7
,, Rent, Rates, Taxes and Insurance		23	11 1
,, Printing and Stationery		61	9 6
,, Salaries, Wages and Insurance Stamps ...		48	9 0
,, Advertising		6	15 10
,, Conversazione		23	0 6
,, Fuel, Light and Telephones		25	6 2
,, Other Payments, viz.:—			
Bonamarghy	£3 0 0		
Nendrum	3 10 0		
Archaeological	20 17 0		
Income Tax	5 19 9		
Addressograph and Multigraph, Ltd.	1 11 3		
Audit Fee	1 1 0		
Binding	2 0 0		
Slides	5 0 0		
Postages, etc.	7 0 0		
Bank Charges	1 1 0		
Interest—£3 15s 8d. and £3 10s. 10d. ...	7 6 6		
		58	6 6
		£424	16 1

We certify that the above is a true Account.
E. J. ELLIOTT, Governor.
W. B. BURROWES, Accounting Officer.

W. R. MACONKEY,
I certify that the foregoing Account is correct.
Comptroller and Auditor-General.
14th day of February, 1934.

Dr. Belfast Natural History and Philosophical Society—Archæological Section. *Cr.*

To Balance	...	...	...	...	...	£134	17	6	1932.						
,, Subscriptions	...	...	...	...	...	18	0	0	Nov. 30	By Bonamarghy (H. C. Lawlor)	...	£0	15	0
,, Bonamarghy	...	...	...	...	...	12	2	6	,,	,, Clerical Expenses	... ...	9	10	2
,, Nendrum	...	...	...	...	...	2	9	0	,,	,, "Belfast News-Letter" Account	...	0	13	6
,, Subsidy	...	...	...	..	...	7	0	0	1933.						
									March 11	,, E. E. Evans' Account	... ...	0	5	6
									April 13	,, "Northern Whig" Account	...	1	14	6
									June 8	,, Seaview Souteraine	... ...	3	0	0
									,,	,, Belfast Corporation Account	...	2	3	4
									,,	,, Rev. Canon Rutherford	... ...	1	15	0
									Oct. 7	,, Goward (D. E. Lowry)	... ...	1	0	0
									,,	,, Balance	... ...	153	12	0
						£174	9	0				£174	9	0
1933.															
Nov. To Balance	...	...	...	...	...	153	12	0							

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EXCHANGES.

ABO—Publications of the Abo Academy.
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ANN ARBOR—Publications of the University of Michigan.
AUCKLAND—Reports of the Auckland Institute and Museum.
BASEL—Verhandlungen der Naturforchenden Gesellschaft in Basel.
BERGEN—Publications of Bergen's Museum.
BERKELEY, CAL.—Publications of the University of California.
BIRMINGHAM—Publications of the Birmingham Natural History and Philosophical Society.
BLOEMFONTEIN—Publications of the National Museum of South Africa.
BOULDER—Bulletin of the University of Colorado.
BRIGHTON—Annual Report of the Brighton and Hove Natural History and Philosophical Society, 1933.
BRUSSELS—Annales Societe Royale Zoologique de Belgique.
,, Bulletin Societe Royale de Botanique de Belgique.
CALCUTTA—Publications of the Geological Survey of India.
CAMBRIDGE, MASS.—Publications of the Museum of Comparative Zoology.
CARDIFF—Transactions of the Cardiff Naturalists' Society.
CHICAGO—Publications of the Field Museum of Natural History.
,, Publications of the Chicago Academy of Sciences.
CINCINNATI—Bulletin of the Lloyd Library.
COIMBRA—Memoirs of the Zoological Museum of the University of Coimbra.
COLORADO SPRINGS—Publications of the University of Colorado.
COLUMBUS—Ohio Journal of Science.
DANZIG—Schriften Naturforschenden Gesellschaft.
DUBLIN—Proceedings of the Royal Dublin Society.
EDINBURGH—Proceedings of the Royal Physical Society.
,, Proceedings of the Royal Society of Edinburgh.
,, Proceedings of the Society of Antiquities of Scotland.
,, Transactions and Proceedings of the Botanical Society of Edinburgh.
NEW YORK—Annals of the New York Academy of Sciences.

OSLO—Publications of the University Library, Oslo.
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OTTAWA—Publications of the Geological Survey of Canada, Department of Mines.
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OXFORD—Proceedings and Reports of the Ashmolean Natural History Society.
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SAN DIEGO—Transactions of the San Diego Society of Natural History.
SAN FRANCISCO—Proceedings of the California Academy of Sciences.
STIRLING—Transactions of the Stirling Natural History and Archaeological Society.
ST. LOUIS—Public Library, Annual Report, 1932-3.
ST. LEONARDS—Hastings and East Essex Naturalist.
STRATFORD—The Essex Naturalist.
STRAVANGER—Arshafte Stravanger Museum.
SWANSEA—Proceedings of the Swansea Scientific and Field Naturalists' Society.
GORLITZ—Publications of the Natural History Society of Gorlitz.
GOTEBORGS—Handlungar Regia Societas Scientiarum et Literarum Gotoburgensis.
HALIFAX, N.S.—Proceedings of the Nova Scotian Institute of Science.
HASTINGS—Report of the Hastings and St. Leonards Natural History Society.
INDIANAPOLIS—Proceedings of the Indiana Academy of Science.

La Plata—"Manuferos Fossiles de la Republica Argentina."

Lausanne—Memoirs and Bulletins de la Societe Vaudoise des Sciences Naturelles.

Lawrence—Bulletins of the University of Kansas.

Lima—Memorias Sociedad de Ingenieros del Peru.

London—"Guide to the Collection of Rocks" in the British Museum, 1933.

,, Quarterly Journal of the Royal Microscopical Society.

,, Publications of the British Association.

,, Proceedings of the Royal Institute of Great Britain.

,, Quarterly Journal of the Geological Society.

,, Publications of the Viking Society of Northern Research.

Madison—Transactions of the Wisconsin Academy of Science. Art and Letters.

Madras—Bulletin of the Madras Government Museum.

,, Administration Report of the Madras Fisheries Department.

Melbourne—Proceedings of the Royal Society of Victoria.

Moscow—Bulletin de la Societe des Naturalistes de Moscow.

Newcastle, Tyne—Proceedings of the University of Durham Philosophical Society.

New Haven—Transactions and Memoirs of the Connecticut Academy of Arts and Sciences.

Sydney—Annual Report of the Technological Museum, 1932.

Tacubaya—Ano Observatorio Astronomico Nacional de Tacubaya.

Toronto—Transactions of the Royal Canadian Institute.

Torquay—Transactions and Proceedings of the Torquay Natural History Society.

Upsala—Bulletin of the Geological Institution of Upsala.

Vienna—Publications of the Society of Zoology and Botany in Vienna.

WASHINGTON—Annual Report of the Smithsonian Institution.

,, Annual Report and Bulletins of the United States National Museum.

,, Publications of the Bureau of American Ethnology.

,, Bulletins of the Smithsonian Institution.

,, Proceeding of the United States National Museum.

,, Smithsonian Institution, Miscellaneous Collections.

,, Publications of the United States Geological Survey.

,, Yearbooks of the United States Department of Agriculture, 1932, 1933.

YORK—Annual Report of the Yorkshire Philosophical Society, 1933.

ZURICH—Publications of the Natural History Society of Zurich.

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